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Charles C. Moore
President of Exposition

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James A. Barr
Director of Congresses

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Discussion of Papers Presented in Section I.

Anatomy, Physiology, Histology

Section I.

Anatomy, Physiology, and Histology.

Chairman: Norman I. Broomell, Philadelphia, Penn.
Vice-Chairman: W. H. G. Logan, Chicago, Ill.
Secretary: Malcolm Goddard, San Francisco, Cal.

September First.

In the absence of the Chairman the Section was called to order at 9:30 A. M. by the Vice-Chairman, Dr. Logan, who said:

"The original work done upon mottled teeth was done by Dr. G. V. Black. The paper to be presented is in collaboration with him. Dr. Black died this morning; therefore, in appreciation of the great work that he did, I will ask you all to rise and bow your heads in silence for a minute."

Dr. Frederick S. McKay, of Colorado Springs, Colorado, read a paper in collaboration with Dr. G. V. Black, of Chicago, entitled "A Brief Synopsis of a Paper entitled; Mottled Teeth; an Endemic Developmental Imperfection of the Enamel of the Teeth Heretofore Unknown in the Literature of Dentistry,"* which was illustrated by numerous slides.

Discussion of Dr. McKay's Paper.

The Chairman. There were two men down on the program to open the discussion on this paper, but neither of them is here. Those of you who have not seen the paper cannot very well discuss it, but if there are any questions that anyone desires to ask, it can be done at this time.

Dr. J. R. McQueen, Bishop, Cal. I have had probably one hundred and fifty of these patients at different times, and am not averse to telling where they came from, and all I know about the condition. They come from Benton, Mono County, California. There is a locality there which is known as an old mining camp, and in that region there are several hot springs, mineral spring, and this is the only water these people had ever had to drink, that is, for a distance of six or seven miles around. I should judge ninety per cent. of all the children born there have used this water, and

* See Vol. I. Page 25.

have this mottled condition of the teeth. These teeth have a brown stain, and instead of this stain being on the labial surface and not on the lingual, I find it on all surfaces of the teeth. A great many of the teeth are pitted; others are perfectly smooth and polished, but with a brown stain on them. Most of these stains run at right angles to the axis of the tooth; bars across it, and so on. I find these teeth are soft ordinarily, but they withstand decay very well. They seem to be substantial teeth. They wear off rapidly on the cusps, and wear down smooth like the teeth of a tobacco chewer. The people who live ten or fifteen miles away from there, where the water comes out of the granite, and particularly the children, are free from this condition, but those who have been born and raised there, and drink that hot mineral water have these stains on the teeth, nearly all of them.

Dr. A. Manhood, Santiago, Chile.

I think the etiology of this condition of mottled teeth is of great importance, and we may very well study how these cases occur. The gentleman who has just discussed this paper thinks probably that the condition is brought about by drinking hot mineral water, but down in our country where we have no hot springs, we have many individuals presenting this condition, and as we are very far away, and know our patients and study them thoroughly, we think we know something about the etiology. If we look carefully into this trouble we will find that there is at the bottom of many of these cases a debilitated condition which affects the mother.

Dr. M. Weiss, Havana, Cuba.

I am not prepared to enter into this discussion, but I can say I know very little about this condition in my own country. However, in the northern part of Spain, where the people drink spring water which contains a large proportion of iron, this condition is manifested. We have tried to find out the etiological factors in these cases, and we have found in some that the condition is due to inherited syphilis, and when a syphilitic condition is at work I am not surprised to find this mottled condition of the teeth, or pigmentation as it has been called. I do not believe it is the water alone that causes the condition, but that syphilitic heredity plays a part.

The Chairman.

I would like to ask Dr. McQueen whether he found these mottled brown teeth in his cases.

Dr. McQueen.

I do not regard it exactly as a stain on the teeth I have seen. It is more a pigmentation of the enamel, the same as the hair; it is not, strictly speaking, a stain. A stain, as I understand, is something we can take off, and this does not seem to be a stain. It seems to be a pigment which goes

through the enamel to the dentin. I have found it in young children where the teeth were erupting. If you regard it as a stain, these children must have received it early indeed. I heartily agree with the essayist that it is a stain which they receive afterwards.

The Chairman. But the essayist did not say that.

Dr. McQueen. I think he used the word "stain" throughout his paper.

Dr. Fdo. E. Rodriguez. With reference to mottled enamel or brown stains, this peculiarity of the enamel has been found to occur in a large percentage of the Indian tribes located in certain regions of the southwest. The Pima Indians of Arizona are intensely affected, and in the course of my official duties as Field Dentist in the Indian Service it became part of my duty to observe the prevalence of this unusual coloration of the teeth and bring the matter to the attention of the United States Indian Service through the Medical Supervisor of the field force. The letter that follows shows a description of the condition as well as what a superficial investigation disclosed.

(Dr. Rodriguez here quoted from a paper read by him in Section IV. The paper in full will be found in Vol. I, page 291.—Ed.)

The question of the "brown stain" in certain localities is not new, and the literature in the matter, although very meager discloses the fact that Dr. H. A. Fynn, of Denver, wrote of this condition among the children in certain parts of the Rocky Mountain region over five years ago. His article was published in 1910, in Items of Interest. In his discussion of this condition, Dr. Fynn concluded that it was due to a lack of lime in vegetable matters and hence in the milk of cows fed upon them. He said that this lack, together with the great demand of the developing osseous system for lime causes a deficiency in the development of the teeth.

Very recently Dr. Frederick S. McKay, of Colorado Springs, has been investigating this condition, and early this year visited Sacaton, Arizona, the headquarters of the Pima Agency, in order to observe the stain among the Indian children in that school.

The fact that our observations tend to show that the brown stain is not causative of any disintegration of tooth structure, nor related in any way to any other dental disease, has made it almost an impossibility to obtain specimens for study, either microscopically or chemically. The demand from certain quarters has been very great, and teeth so obtained by any means, that is, by extraction, has met and will meet with opposition on my part. Being entirely opposed to the view that this mottled enamel weakens tooth structure, the reckless extractions of teeth is to be deprecated.

The Dearborn Drug and Chemical Works, of Chicago, have furnished a report on a sample of water, marked "forty-five feet well," which was received from the United States Indian Agency, Pima Training School, Sacaton, Arizona, March 19, 1909. The mineral analysis is as follows:

Silica	1.214	grains per gallon
Oxides of Iron & Aluminum	.210	" " "
Carbonate of Lime	10.416	" " "
Sulphate of Lime	7.548	" " "
Carbonate of Magnesia	4.654	" " "
Sodium & Potassium Sulphates	7.063	" " "
Sodium & Potassium Chlorides	38.250	" " "
Loss, etc.	.024	" " "
Total Mineral Solids	69.379	
Organic Matter	Trace	
Total Incrusting Solids	24.042	
Total Non-Incrusting Solids	45.337	
Pounds Incrusting Solids per 1,000 U. S. Gallons	3.43	
Pounds Non-Incrusting Solids per 1,000 U. S. Gallons	6.48	

Contains a little less than 69½ grains of mineral matter, and a trace of organic matter, U. S. gallon of 231 cubic inches.

This water will cause the formation of about twice an average amount of incrustation, which will be decidedly hard, impervious, persistent and tenacious. It is also very prone to cause trouble, under virtually all conditions, in the way of corrosion and pitting, due to the relatively large amount of sodium and potassium salts present, principally chlorides.

Dr. J. W. Neblett, Riverside, Cal.

I would like to ask a question on a point that is not very clear to my mind. I live at Riverside, where we have a great number of Indians, and I have been noticing this trouble among them. I would like to know if this stain comes after the teeth are erupted or are they erupted with this stain?

Dr. McKay.

Almost invariably the stain appears afterwards. I can recall scarcely a case in which the newly erupted teeth were stained. The stain appears on the teeth gradually.

Dr. Neblett. Is that the reason why they have the white chalky-like teeth?

Dr. McKay It is only teeth that are originally of the white chalky nature (mottled enamel) that can acquire the brown stain.

The Chairman. Is there any further discussion on the subject? If not, I will call on Dr. McKay to close the discussion.

Dr. McKay. (Closing.) There have been so many questions brought up in connection with this subject that I can only answer them in a general way. I may say that I was prompted to bring this matter before the Congress, hoping I would come in contact with men who had observed similar cases in their own localities, and that in that way we would gradually widen the field of investigation. I am glad the gentleman spoke of different places in which this condition is found. One gentleman spoke about these teeth withstanding decay. I think Dr. Rodriguez agrees with that, and so do I. Dr. Black has made the observation, and has said that there was not an unusual prevalence of decay in teeth of this sort.

Mineral Water Not a Factor. The question of mineral water opens up an immense field, and I will dispose of it in this way: Some of these localities where this condition is very marked in the teeth of children, contain mineral waters of various sorts, and yet only a few miles distant there may be another town, in which the water is totally different, and not to be considered "mineral" in the ordinary sense, but the natives have the same condition of the teeth.

The question of "mineral" water, in the ordinary sense, does not seem to enter into the question in the slightest degree. In one of the largest afflicted territories, in a million parts of water there are only fifty-eight solid parts—a low content. The druggists use it as distilled water, that is, they do not bother with distilled water for filling prescriptions, yet the mottled condition is very prevalent. One cannot by any stretch of the imagination consider that as "mineral" water.

Granite Water. Speaking of the question of granite water, one gentleman said that in his locality, which was an afflicted district, hot mineral water was used for drinking, while in a nearby territory in which the water ran over a granite formation the children were free from the stain. I could cite a locality in which the water comes in contact with nothing but granite, and yet eighty-eight per cent. of the natives are afflicted. Thus the water data is completely contradictory in so far as it has yet been interpreted.

Debilitated Condition of the Mother.

As to debilitating conditions in the mothers, previous to child birth, I think the quicker we get rid of the idea that the mother's condition has anything to do with it, the quicker will we have arrived at a basis for solution. We are all familiar with the fact that the enamel of the permanent incisors does not begin to form until after birth; about a year seems to be the accepted average, and we certainly could not advance any prenatal influence as a cause for this lesion in those cases in which the third molars are the only teeth which are mottled in individuals who came into an afflicted locality at the age of ten or twelve. Many such cases have been observed.

Pigmentation.

One gentleman spoke as though it were a pigment, that extended to the dentin. I have not seen a condition of that sort. It is a lesion of the enamel only and involves the superficial layers. Dr. Black has shown that the dentin is not a factor in these cases at all.

Iron in Water Not a Factor.

I was glad to hear what was said of the northern part of Spain, and I wish I could know more about that district. Analysis of the waters we have gathered from the afflicted territories, shows, as a rule, not one trace of iron; therefore we must dismiss the question of inorganic iron, so far as water is concerned.

Syphilitic Influence.

With regard to the question of syphilitic influence, let me cite one large community which has a river running through it. This lesion or condition is found among the natives of one side of the river, and is practically absent in the natives of the other side. It would be absurd therefore, to say that all the syphilitic people have grouped themselves on one side of this river. Many other illustrations could be given to disprove any association with syphilitic conditions.

These are random illustrations, and I am showing that as fast as we set up a theory there is very little difficulty in demolishing it.

The water that I mentioned a few lines back, in a certain community, shows only fifty-eight solid parts in a million. Another community has water that has over fourteen hundred solid parts in a million, and the children in both communities are equally afflicted. One of these waters is of extreme purity. In one localized spot which I visited, the children of the family were raised right there, and never lived anywhere else, and the water used by them was taken from a spring which gives as clear and pure water as I have ever seen. I had some of it analyzed, and it showed nothing suspicious at all. Contrast such water with the water

from a dirty or muddy river from which the Indians get their domestic supply, yet the lesion is the same in both places.

I was very much interested in the Indian data given by Dr. Rodriguez. I hope to get the results of his investigations. We have received valuable data from his territory, and I hope we will receive a great deal more.

Question. In regard to the pigmentation, how does it get into the teeth? Is it from absorption from the outside or what? Does it reach the dentin?

Dr. McKay. Dr. Black has considered the manner of its deposition carefully and the results of his studies are soon to be published. I do not know what his conclusions are. Two questions have arisen: Is the stain something which penetrates from the outside, or is it laid in from within? If the latter, it must have been done during the developmental period. Personally, it is hard for me to understand how this pigment could have been laid on from the outside, for the reason that these teeth almost invariably have as glazed a surface as any normal enamel. Dr. Black, in his forthcoming paper on this subject, says it is impossible to introduce the finest kind of an exploring proble anywhere in the enamel surface. Personally I cannot conceive of it coming from the outside. If it does, why is not all mottled enamel stained? Only forty per cent. of individuals having mottled enamel have the stain. My own theory is that it is laid into the enamel from within, through some cause not yet determined, and if so, it must be some substance that undergoes a slow chemical change which gradually produces the brown color after the teeth have erupted. My observation of newly erupted teeth has been large, and I recall only a few instances in which the teeth have shown this stained condition at the time of eruption.

Question. I should like to ask why this stain is observed in the secondary and not in the primary teeth of children?

Dr. McKay. I can answer that question only in this way: We all know that the nutrition of the unborn child is very carefully dialyzed through placental osmosis, and the child gets its nutrition in a most carefully guarded manner. After birth, the environment is totally different and the individual is then acted upon by some peculiar influence which produces this lesion in the forming enamel.

Question. I would like to ask whether you have explored the internal part of these teeth and know the condition of the pulp?

Dr. McKay. I have never found nor observed any unusual condition of these pulps. They are the same as any other pulp tissue so far as I know.

Question. The tissue is perfectly normal so far as you know?

Dr. McKay. Yes.

A Member. I wish to say that I opened into one of these teeth, and found an atrophied condition of the pulp. I simply mention this, hoping that it may lead to further investigation along that line.

On motion, a vote of thanks was extended to Dr. McKay for having presented such an interesting and scientific paper.

Dr. F. C. Friesell, Pittsburg, Pa., read a paper entitled "Practical Application of the Histology of the Peridental Membrane."*

Discussion of Dr. F. C. Friesell's Paper.

Dr. G. T. Williams, Seattle, Wash. Dr. Friesell has given us a description of the investing tissues of the human teeth, which is quite in accord with the best authority, and in passing I should like to express a hope that our tardy profession might soon take hold of the nomenclature as here given and make it a common part of our professional language.

The refreshing of our minds as regards histology of the peridental membrane, I shall leave for others to discuss, and just for a moment take advantage of the opportunity to indulge in a brief discussion of the latter part of Dr. Friesell's paper, which has an intensely practical ring to any and all engaged in the practice of dentistry, no matter what their specialty.

As the essayist urges, the peridental membrane with its varied collection of elements, and performing a function so essential to the dental organs, should be more thoroughly studied, especially in the daily routine of the dentist's practice.

"Our great deficiency as a profession," says Dr. G. V. Black, "is in not recognizing easily corrected conditions soon enough, or doing so, failing to appreciate the direct relationship between the apparently trivial

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* See Vol. I. Page 35.

gingivitis, and the more serious lesion of the peridental membrane which results."

Eliminating pulp lesions from consideration, it should be understood that gingivitis precedes the pericementitis in every case, and in view of the lack of power of reattachment of the peridental membrane to the cementum, it is of the utmost importance that we pay more attention to the earlier lesion, the gingivitis, which can usually be prevented or cured by simple means.

Since the gingivæ stand in the position of protection to the deeper investments of the teeth and their attachment in their bony alveolus, a practical consideration of the subject must lead us to consider ways and means of preventing injury to the gingivæ.

One of the big problems before our profession to-day is, how shall we properly take care of the people recently aroused to the importance of dental service, as a result of the Oral Hygiene Campaign?

How much more complicated the problem becomes when we consider the words of Black, Rosenow, Billings, Mayo, our essayist and other eminent investigators, who very emphatically point out to us our responsibility for many diseases manifesting symptoms far remote from our special field, the oral cavity.

We as a profession surely have our hands full in repairing the ravages of decay. Why do we not prevent the greater art of the trouble by recognizing causative factors early and eliminating them while the task is easy?

Nothwithstanding our increase in skill as time advances, we must, in the face of the serious responsibilities placed upon us, not attempt to care for so many patients and render a better service to the few we have.

Dr. Black says preventive treatment should become to be a considerable part of the practice of each dentist and should be undertaken seriously and conscientiously, giving six steps as a guide.

First—Careful examination of gingivæ.

Second—Record of area of inflammation observed.

Third—Study the cause of such area.

Fourth—Treatment necessary to remove such cause.

Fifth—Careful training of the patient in the care of the mouth.

Sixth—Subsequent examinations.

I know from listening to this timely paper that we are going to take up our work upon returning home with a broader conception of our possibilities, keeping in mind the principal factors in the causation of gingivitis namely:

First—Lack of contact.

Second—Improper contact.

Third—Deviation from the normal smooth contour of teeth.

Fourth—Abuse of the tissues by the dentist in operating.

Fifth—Lack of cleanliness.

Sixth—Misuse of tooth-picks, rubber bands, floss silk, tooth-brushes, causing accidental injuries, etc.

I remember some few years ago at a dental gathering listening to a prominent member of our profession, who cornered Dr. G. V. Black and asked him for the latest and best treatment for pyorrhea, and received this very brief but comprehensive treatment. "Don't allow it to begin."

Dr. T. W. Seydel, Chico, Cal.

The gentleman who opened the discussion brought to my mind two or three cases in my daily practice that impressed me extremely with the carefulness needed when using ligatures. Just before I left home to attend this Congress, a patient came into my office who had had some work recently done, and the operator had failed to remove a part of the dam. I presume this had been left on the tooth, which was a cuspid, for six or seven days, and you can imagine what condition the tooth was in, and what the condition was under the free margin of the gingivæ. This case impressed me as to the care we should exercise in using ligatures and in their removal.

Dr. H. Gale Atwater, Los Angeles, Cal.

It was not my pleasure to hear this paper read, but I have felt in the consideration of the histological technique or histological study of these particular relations that we have never taken into consideration the fact that we are rapidly becoming physical deteriorates through civilization, and that we do not understand that when we want to make the right arm, for instance, of a child strong, we use it.

Use of the Teeth Recommended.

When we want to protect any element or system in the body we recommend the use of it. The particular thought I want to bring out is that where you are educating children, you should urge them to use the teeth freely in order to stimulate strength in these tissues. While it is proper to discuss and to think of injuries created ourselves, when we come to the babies we say that these little ones cannot bite on hard crusts without doing them injury, but we know that this is not so when we look at the natives of certain countries who chew the hardest kind of foodstuffs. While I was engaged in country practice for several years I took up the treatment of pyorrhea alveolaris, or irritation about the teeth, and started with young children over whom I had control. I would

have them eat corn; I would take common wheat and roast it and give it to them with olive oil. I would give them a handful of that so they could exercise their teeth freely and thoroughly, and this was the salvation of the teeth of these young children. I believe that thought is worth remembering, and of bringing to your attention.

Dr. Friesell. (Closing.) I want to thank those who have taken part in the discussion, and I feel very grateful to them for it. I am somewhat disappointed in the absence of the two men who were to have discussed my paper, but as you know, Dr. Black was called home to Chicago on account of the illness of his father. I prepared this paper, thinking these men would be present to discuss it, and would take care of one phase of the discussion, showing by slides and by recitation of personal experiences the results that can come from injury to the peridental membrane. It is without doubt the most important fact that the dentist has to consider, and there is a deplorable lack of interest that probably starts from the college days in studying the details of structures other than this. Those of you who attended college twenty or more years ago will bear me out when I say that you thought of histology and bacteriology, physiology, chemistry and such studies as merely filling in the curriculum. You attended these lectures because you were compelled to do so, and cribbed out a little bit from compends to pass an examination. By reason of your presence here to-day, as a result of practical experience and of your reading, you have come to know that a knowledge of the tissues, a knowledge of the anatomy of the tissues, a knowledge of the microscopic structure of the tissues with which you have to deal, is very essential to your physical skilful work, and I appreciate the attention you have given my paper. My hope was to instill in the minds of some of my hearers a desire to study carefully the standard works that have been written upon the subject of the peridental membrane, and to become familiar with the details of the structure, because it is a well-known fact that while you may in an empirical way recognize a diseased condition by simply looking into the mouth, yet you cannot describe that particular disease, until you know what that tissue should be when it is normal, so that pathology depends upon histology. A man cannot be a pathologist and be a good one unless he is well versed in histology.

The Chairman. A motion to read by title the paper of Dr. Vida A. Latham, of Chicago, Ill., entitled, "Anomalies in

Pulp Structure, and Their Relation to Clinical Work"* will be in order.

Motion seconded and carried.

The paper by Dr. Theodore D. Casto, of Philadelphia, Pa., entitled, "Changes Produced in the Circulation by Gas—Oxygen During Dental Analgesia and Anesthesia"** was read by title and ordered published in the Transactions of the Congress.

A paper by Dr. Hanae H. Hanazawa, entitled, "A Study of the Minute Structures of Human Dentin, especially on the Relation between the Dentinal Fibrils and Tubules,"*** was read by title and ordered published in the official proceedings.

Adjourned.

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*See Vol. I. Page 56.
** See Vol. I. Page 41.
*** See Vol. I. Page 80.

Discussion of Papers Presented in Section II.

Etiology, Radiography, Pathology and Bacteriology

Section II.

Etiology, Radiography, Pathology and Bacteriology.

Chairman: Frederick Bogue Noyes, Chicago, Ill.
Vice-Chairman: R. H. Hofheinz, Rochester, N. Y.
Secretary: W. H. Renwick, Sacramento, Cal.

August Thirty-First.

In the absence of the Chairman and Vice-Chairman, the Secretary, Dr. Renwick, presided at the opening meeting of Section II.

Secretary Renwick stated that a letter had been received from Dr. Frederick B. Noyes, regretting his inability to be present, and also a letter from him stating that the condition of health of Dr. Hofheinz (the Vice-Chairman of the Section) was such that he did not feel able to make the trip West; and enclosing a copy of his paper to be read by title.

Dr. W. H. G. Logan, of Chicago, read a paper entitled, "Blood Findings in 162 Consecutive Cases of Chronic Oral Infection Associated with Teeth."*

Discussion of Dr. Logan's Paper.

Dr. J. P. Buckley, Chicago.

Dr. Logan tells us that a pyorrhea pocket, or a number of pockets, if you please, unless deep-seated, unless they involve the bone, are accompanied by very little interference with the blood; that there is very little change in the leucocyte count. I think that is a point of interest. From his studies he concludes that with a deep pyorrheal pocket, one that involves the apices of the roots we may have a marked change in the white blood-cells. He has also shown us that the treatment of a gangrenous pulp, even though there may not be a rarefying area around the root end, will increase the number of leucocytes, bring it back to normal, or at least enhance the resistance on the part of the system of the patient. These things are of interest to us.

The Chairman.

Dr. Sharp, we would be pleased to have you offer a few words in discussion.

* See Vol. I. Page 113.

Dr. J. G. Sharp, San Francisco.

Pyorrhea around the apices of the teeth has appeared to me very much in the light of an ordinary apical abscess resulting from an infection produced within the roots of the teeth, and it has seemed to me that we can classify those abscesses into three or four different types.

One is the apical abscess, finally becoming a suppuration in the tissues without a sinus, and which may be merely an absorption of bone without really an infection of that bone; it has seemed to me that I have seen those cases as distinguished from cases in which the bone has become infiltrated with the germs of the disease, thereby producing more serious consequences. The question I wish to ask is, "Has Dr. Logan found a difference in the results of his treatment, in those cases which proved to be absorption of bone from the pressure of the pus within the bone cavity, and those other cases in which he has found a great infiltration of pus into the bony tissues surrounding it?"

My work is rather more of a surgical nature, without dealing very much with pyorrhea, so on the question of pyorrhea and its treatment I really can say very little.

The Chairman.

Is there anyone present who would like to take part in this discussion further?

Dr. E. A. Lundy, Los Angeles.

As to the treatment and filling of root canals I feel that scientific advancement along these lines will be most helpful to those of us who are attempting to treat pyorrheal conditions. I know that in years gone by I have had a great many teeth which have given me no end of trouble, because I was unable to treat the canals as I would have desired, and I think that many of us to-day are possibly trying to save more teeth than we should; that we should pay more attention to these apical disturbances and these absorptions and this necessary curettement that Dr. Logan describes. We have cases where the teeth will not yield to treatment, and after extraction we find a denudation, we find conditions around the apices that should have been considered more carefully.

The Chairman.

Is there any further discussion? If not, we will ask Dr. Logan to close the discussion on his paper.

Dr. W. H. G. Logan.

There has been a question asked as to whether or not I found a varied blood count when there was varied bone involvement, which was of an infective nature. I have not.

And so far as to what should be done with the old chronic cases of infection around a root end, that is a problem which is yet to be solved,

Is there one among us who knows, when we take off a root end that the process of infection has stopped and is permanently controlled? I think not. And if we do not know that, we must now find it out. Possibly a way may be shown to find it out. We did not know that the infection was present until we obtained the help of the radiograph. We do not know that it does not heal over still infected and yet remain just as quiet as it did before. Neither do we know exactly when we should extract teeth to relieve the infective process in the active stage. Therefore, there is much to learn in regard to things that we thought we had been doing rather well. We have been of the opinion that if an infective process remains, that it would not heal over. We know now that this is not true. Just when or why this occurs, I do not know. I also have reason to believe that the plan of blood examinations and the relation to the systemic effect that I presented here to-day is not sufficient. It is the best that I know. But I also know that it is not sufficient, and knowing that, I am trying to get a better plan. But yet I do know that there has never been in all the literature of dentistry one-tenth as many cases presented, consecutive cases, as were presented to-day. So from that we may gain some information.

The Chairman.

We will now pass on to a consideration of a paper by Dr. George Bailey Harris, of Detroit, Mich., on "The Value of Bacterial Vaccines in the Treatment of Pyorrhea."* Dr. Harris cannot be with us, but Dr. B. R. East, of Detroit, is here to present the paper.

Dr. Harris's paper was then read by Dr. East.

Discussion of Dr. Harris's Paper.

Dr. C. H. Oakman, Detroit Mich.

I have observed Dr. Harris in his work very closely, and can say that he has been a very faithful apostle of the cause of vaccine therapy. The question of autogenous versus stock vaccines is a question that is agitating the minds of many men, but I believe that it is the concensus of opinion that both stock and autogenous vaccines are of great value. Stock vaccines will often give a good result where the autogenous vaccines fail, and vice versa. But as time passes, we are being taught that to get the best results from the use of vaccines, is to first remove the cause. Of course, this cannot be done in the general practice of medicine, such as in the treatment of acne and other skin diseases, wherein vaccines have been of special value.

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* See Vol. I. Page 137.

Case History.

I wish to give a history of a case which was intensely interesting. Mrs. H. was confined in an insane asylum for about a year, and her condition was so bad that she did not even know she existed. Her physician, contrary to the wishes of the superintendent and physicians of the asylum, gave her three injections of Salvarsan, which improved her condition enough to bring her home. At this time, her mouth became a putrid mass. The stench about the home was so marked that it was necessary to burn sulphur in order to make the home habitable. The pus was secured and autogenous vaccines made. While waiting for the same, stock vaccines were used. This, together with manipulative treatments and the removal of the deposits and the elimination of the pus, the mouth cleared up. Her mental condition improved after her mouth was treated. For three months, the mouth was remarkably good, as far as clinical observation was concerned. Shortly thereafter, I was again called to see the patient, and the characteristic odor on entering the room was as marked as it was on my first visit. The pus had returned, and the patient's tongue had protruded from her mouth, and as she had a marked glossitis, it was impossible for her to draw her tongue back into her mouth. An ulcer on the posterior, right side of the tongue about three-quarters by one-half inch in size, did not yield to treatment. The progress of the sloughing was very marked, for in the next three weeks, the ulcer had included the whole side of the tongue, as far back as we could see. It was her custom to sleep sitting in a chair, as she had difficulty in breathing when lying down.

Consultations were held, but of no avail. This sloughing, no doubt, was due to the fact that the case was luetic, which, of course, would account for her mental condition. The sloughing continued until it had reached the lingual artery, when she bled for several hours. The following night, she had another hemorrhage in which she passed away, with the tongue still protruding from her mouth.

This woman had contracted syphilis through no fault of her own, and we were not aware of the fact until it was too late. I am firm in the belief that I have patients walking about, who otherwise would have been confirmed cripples if it were not for the use of vaccines.

Case No. II.

Mr. M., a man from the interior of the State, had complained of being ill for a number of months. He stated that he was just about able to move about, and in order to do that, it was necessary that he be in bed from fourteen to fifteen hours out of the twenty-four. He was tall, stoop-shouldered, flat-chested, and had a color which denoted that he was a sick man.

On examination, we found that he had a temperature from one-half to one degree up. His jaws and teeth were radiographed, and it was found that he had an abscess at the apices of the molars which had infected the antrum. A radical operation was performed on the antrum, as the floor of the antrum was considerably diseased. While under treatment, he had to be confined to his room a good deal of the time.

After elimination of the pus, followed by the use of stock and autogenous vaccines, he began to show marked improvement. He remained in Detroit a month. Every night, until the last ten days, he went to bed not later than eight o'clock, as that was his limitation. The last ten days, he became quite a sport. He went to the movies and indulged in other light amusements, to such an extent that he was able to sit up until eleven and twelve o'clock without apparent strain. In leaving for home, he had a happy smile and said that he felt like a new man. This was very different from a month previous, when he asked me, "Do you think I will get well?" I saw this patient a year later, and he was in perfect health. While the patient would have undoubtedly recovered from his anemia following the antral operation, at the same time, I am satisfied that the vaccines hastened the cure.

Dr. F. M. Parker, Los Angeles, Cal.

Mr. Chairman, Ladies and Gentlemen: I want to thank Dr. Harris for this paper. I think it is a very valuable addition to the literature on pyorrhea, and especially on the use of vaccines. When Dr. Head's article came out in the medical journals some years ago I read it with a great deal of interest. I thought of that to some extent in the treatment of cases, and Dr. Gray and myself went to the County Hospital once a week for half a day and we tried the method first upon patients in the County Hospital. We had first made some autogenous vaccines which were used on those patients. But we found that in using an autogenous vaccine it acted just as well on someone else as it did on the particular patient. In fact, we found it frequently acted better. So in many cases we did not have time to scale the teeth at all, which in private practice I would recommend and would in fact insist on such local treatment. In those cases where we treated only with the autogenous vaccines, finally we switched to phylacogen, of both the mixed infection and rheumatism phylacogen; we found that by using Head's formula of ammonium-fluorid painted on the teeth, next to the pyorrhea, the cases cleared up to a large extent, and by the use of this phylacogen we found that the patients began to recover; and there were many dismissed from this hospital who were chronic hospital patients; some who had been there months and even years.

One old fellow on whom we tried out the rheumatism vaccine and the phylacogen—(as you know that is based on the streptococcus)—said he had had rheumatism ever since he was three weeks old.

We created some trouble in the hospital by the use of this phylacogen. The Superintendent of the hospital wanted to know if I was a doctor. He said, "You are conflicting with the medical men and are curing these cases." He said, "A dentist has no right to inject anything except into the mouth." We were using this in the jaws, and in the legs and arms. We started out with this treatment with half a cubic centimeter, then increased up to two or three c. c. in the treatment of these cases once a week. We could not go back oftener than that and we had some remarkable recoveries there, so that I have adopted it in my private practice and I believe we have had more successes with that than with anything I ever used. Of course, we use local treatment; we thoroughly scale and clean and sterilize every time the patient comes into the office.

I will say that many dentists have not had much experience in using the hypodermic. It is easy to sterilize it because all that is necessary is to boil the syringe. If it is boiled thoroughly and then some antiseptic solution is put in with it, the syringe is sterile. We use alcohol only to clean the surface thoroughly and leave the alcohol on until ready to make the injection and afterward we paint the puncture with collodion. Nothing will enter then. We have some reaction only in the first few doses. If we start with large doses the reaction is a chill and an increase of two or three degrees in temperature. I had a patient who became very much frightened. What I recommend in case of a rising temperature and the patient becoming frightened, is to put him into a hot bath and sweat it out of him, and he will than have no further trouble.

We have been very successful in the use of stock vaccine, and we also have used the autogenous vaccines. But we have found the best results from the stock vaccines. I thank you. (Applause.)

Dr. C. McCauley, Dallas, Texas.

Mr. Chairman, Ladies and Gentlemen: I think this paper is one of especial interest to those of us who are endeavoring to treat pyorrhea. I have had one case in particular—I have had a number of cases which might be of interest to some of you who have not used autogenous vaccine, but I have one case that stands out separately from other cases in the way of results.

History of an Interesting Case.

A gentleman about fifty years of age had been an active business man, practically all his life. He was a banker by profession. He was in robust

health, and had always had good health. At the age of fifty he was informed by a dentist that he was suffering from pyorrhea and was advised to have that disease treated, which he did. The pyorrhea was treated in a very thorough manner, having been treated by the planing process and the work was thoroughly done. Some teeth were extracted, others were splinted, and when the work was complete the mouth looked very well indeed. This patient had known for ten years that his teeth were becoming loose, and he supposed that he had had this disease for a long period of time, which in all probability was true. Almost immediately following this treatment his health began to fail. He began to grow emaciated. He went to his doctors who diagnosed the trouble in different ways. I am stating this to bear out my contention that there are more cases of secondary infection arising from these pyorrheal conditions than most of us appreciate.

This patient went along for four or five months, getting worse and worse. Finally his home physician advised him to come to the city and consult a specialist, which he did. He came to the City of Dallas and consulted with three of four specialists in stomach diseases, nervous diseases, etc. Finally his trouble was diagnosed as a secondary infection, resulting in endocarditis. The man was in the hospital when I saw him after the case was referred to me. He was in the hospital where he had been under treatment for two weeks, without any perceptible change. The twenty-four hours previous to the beginning of treatment, his pulsations ranged from 120 to 140 per minute, showing quite a fluctuation. There was no free pus around the teeth; the pus had not returned to the extent that free pus could be found. His gums were still in fairly good condition. The odor from the breath was very bad. For twenty-four hours following the first injection of practically 250,000,000, the pulse showed a reduction of the minimum from 120 to 112. The hospital records will bear me out in these figures. The following day the minimum was still less, and the fluctuation decreased. At the end of the week this patient was able to get out of bed, and with some assistance came to my office. A very few days after that he went home. He lived in a neighboring State. The autogenous vaccine administrations were continued by his family physician. By the time the entire course of treatment had been given this patient was ready to go back to his business. And since that time, which was three months ago, he has made a trip to New York and other Eastern cities on business pertaining to his bank, and his pulsations have been reduced during the course of the autogenous vaccine administration from a maximum of 140 to a maximum of 84. The pulsations averaged from 80 to 84 at the end of eight weeks, when this course of

vaccine treatment had been completed. The man said he thought he was almost a well man.

Danger from Treatment by Planing Roots.

The conclusion which seems to be justified is, that during the planing process or the removal of the deposits from the roots of the teeth, and the thorough manner in which it was done, that the stirring up of the infection, opening up or breaking down Nature's protecting wall, had allowed this infection to be absorbed, and transmitted to the valves and the lining of the heart, resulting in the serious trouble which he had. The evidence of that fact seems to be in the recovery of the patient when treated with a vaccine made from a culture from the patient from around the teeth. I neglected to say that after the third injection of the vaccine there was no more odor to the breath; either the second or the third, I believe the third; by that time the odor had cleared up almost completely.

Second Case.

One other case, just for a moment; a lady, some fifty-odd years of age claimed that after a treatment with autogenous vaccines her stomach trouble was very much improved; that her general health was very much better, and, unlike any other case which I have had, she said that a vaginal discharge which had been present for a number of years, causing her a great deal of discomfort, had entirely ceased. (Applause.)

Dr. M. Weiss, Havana, Cuba.

Mr. Chairman and Gentlemen: I am under the duty of taking part in the discussions at this Congress. It seems to me that we cannot say definitely today that we can cure pyorrhea alveolaris. I have been very much interested in the study of this subject. I have tried the vaccines since their discovery, as I have tried every other new scientific method for the cure of pyorrhea. Until now I have failed——I do not know if that is the right way in English, to express it—I have failed to convince myself that I have found a cure for pyorrhea. I have made a study of the bacteriological aspect of it, and that is the word I bring to this Congress.

We are finding and studying the streptococcus and the staphylococcus and the pneumococcus, but are these bacteria the cause of pyorrhea alveolaris? To what is the cure of pyorrhea to be due? I deceive myself so to speak, as to the cure of pyorrhea. So I will need to see that the disease has been cured, and then I will believe it, because so many have said that cases are cured when they have not been cured.

It is not a fact that staphylococci and the streptococci and the pneumococci cause pyorrhea alveolaris. Otherwise why did they not

cause it when injected into the circulatory system? We do not know why. For that reason, I say I began my own bacteriological study of pyorrhea, and I found the endameba and the spirochete and the bacillus fusiformis, and I found the spirillæ and the strepto-bacilli and the diplo-bacilli and I found the diplococcus; I found blood and much pus.

I first studied the smear and I saw the spirochete and the bacillus fusiformis, and I said, "Well, we have the material with which to kill them, the endameba and the bacillus fusiformis and the spirochete," and I began my treatment with emetin, not injecting it, but just washing the alveolar surfaces with it, and the whole surface surrounding it with the emetin in one per cent. solution. And after that I used the pure neo-salvarsan into the body and around the gums, and there was no trouble at all. And I took a smear two days afterwards, and that smear showed me the amœba again, the spirochete and the bacilli fusiformis in abundance and so on with the other bacteria which I mentioned before. I continued the treatment, because as you say, if you do not succeed the first time, try again, and I gave them plenty of time. I have been three months trying to get something that will do the work. I killed the spirochete and the amœbæ and the spirillæ, and this was by the use of emetin and neo-salvarsan.

The surgical treatment is necessary where we are dealing with a bacteriological question. Besides the surgical treatment we use the therapeutic treatment. I say again, I have killed the amœbæ because my smears said so. No spirillæ, no bacilli fusiformis are present either, but the pus is still flowing. You will see that on the smear. That means that the amœbæ contribute to the pyorrhea. But it is not the only and specific cause of it. That means that the bacillus fusiformis and the spirochete, just the same as in the anginas, the specific anginas, produced by the spirochete and bacilli fusiformis might cause some pus in the alveolus and in the joints; but it is not the only and specific cause of pyorrhea. And what should we do then? Well, we can continue to study, and I did that. I killed almost every bacterium. I have the slides with me and they can be shown. The diplococci, they began in very small quantities, in what I call this natural or original smear of pyorrhea, and it progressed until in my three or four last cases I could not get any pus at all, and I could get the sanitary condition in good shape. Before I studied the smear I made an artificial culture on three media, agar, bouillon and potato. In the agar there was a pure culture of diplococcus.

What I want to say is that it is very easy, without any deeper study to suppose that the cure of pyorrhea alveolaris has been already discovered. But if we go into the matter, if we examine the pus and do as thorough work as I did, we will come to the conclusion with regret

that we cannot as yet cure pyorrhea. But that does not mean at all that we never will cure it. That means that with scientific study some day pyorrhea alveolaris may be cured. I thank you. (Applause.)

Dr. East. Almost everything except what the gentleman from Cuba has said has backed up Dr. Harris' contention. I am very sorry that the men here who are using emetin did not see that the first slide represented a case which was not possibly treated with emetin.

The slide which showed a case which we claimed had pus, cleared up—whether it was cured I will not say, but the pus disappeared—where there was no local treatment instituted; that does not mean that Dr. Harris contends at all that pyorrhea should not have local treatment. In fact it should have, to get the best results, as the blood must come in contact with the pus germs, in the pocket.

The gentleman from Cuba would like to see some cases which have been cured. I am sure that if he will journey to Detroit, Dr. Oakman can show him a few at least.

I have no doubt that the gentleman found all the germs that he spoke of in the mouths down in Cuba. We can find nearly as many in the mouths of people in Detroit. And there is no doubt that a good many of us could have salvarsan used on us to advantage, but I do not think we would want to use that to cure pyorrhea.

One reason for injecting is simply this: there are new points of infection which occur in the joints, and if you inject there you will get opsonins to working in the blood, which remove the cause, where if you would scale for a lifetime you will not remove them.

I am very sorry Dr. Harris is not here. I am simply a substitute, and I quite sure that he could give you some interesting accounts of cases. I know that he has cured pyorrhea. I have seen it myself and that is what I can testify to. I thank you very much.

The Chairman. We will next have the paper of Dr. Thomas P. Hartzell, Minneapolis, Minn., "The Etiology of Dental Abscess: Acute and Chronic."*

The Chairman. This paper is now open for discussion.

(No response.)

The Chairman. The next paper to be read before this Section is on "Differentation of the Radiographical Appearance of Normal and Abnormal Tissues as an

*See Vol. I. Page 162.

Aid to Dental Diagnosis,"* by Noboru Ternuchi, of Tokyo, Japan. This paper will be presented by title only, and will appear in the Transactions. Dr. Ternuchi prepared this paper and sent it over. He is not here to read it, so it will not be read. He also sent many photographs to cover his work. If any of you care to see them, they are here on the desk.

The Chairman announced that the reading of a paper by Dr. A. H. Ketcham would be proceeded with, but the hour then being 12:30 o'clock, and a number of those present being in the act of leaving the Hall, upon the suggestion of Dr. Logan, the Chairman declared that if there was no objection the meeting would now be declared adjourned, and that Dr. Ketcham's paper would be assigned an early place in the program of the succeeding day. This suggestion prevailed and an adjournment was taken until the succeeding morning, Wednesday, September 1st, at 9:00 o'clock.

September First.

The Section met in Hall D, Third Floor, East Side, at 10:30 o'clock A. M.

Dr. W. H. Renwick, the Secretary, presided in the absence of the Charman and Vive-Chairman.

The first paper of the morning was read by Dr. A. H. Ketcham, of Denver, Colo., and was entitled, "The Necessity for the Use of the Radiograph in Orthodontia."**

(This paper was admirably discussed by Dr. J. D. McCoy, who illustrated his comments with remarkably fine radiographs (lantern slides) lacking which we are unfortunately unable to publish his discourse.—Ed.)

A paper was read by Dr. W. H. Strietmann, of Oakland, Cal., on "Oral Sepsis as Related to Systemic Disease."*** After the reading of the paper certain illustrative lantern slides were shown, practically without comment by the essayist.

Discussion of Dr. Strietmann's Paper.

Dr. A. C. Wherry, Salt Lake City.

I would like to ask one question of the doctor. How does he look upon the comparative systemic dangers of the blind abscess as compared with the abscess with a free fistulous tract, or a pyorrheal pocket?

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*See Vol. 1. Page 165.
**See Vol. 1. Page 132.
***See Vol. 1. Page 147.

in all cases that the antrum is infected from a tooth; it may be infected through the nasal cavity.

Dr. H. C. Wherry, Salt Lake City.

The doctor's paper is one of deep interest to every conscientious dentist. I think, however, that it would not be fitting to permit this discussion to be closed without a few words from the dental side. In making these remarks, Doctor, I do not desire that you understand me as taking issue with you, because I thoroughly endorse your paper, and I think humanity is to be blessed by the teachings along these lines.

Extraction of Teeth.

But there is one point in connection with your paper that I feel we must give serious consideration to, namely the careless extraction of teeth. To extract these teeth is not essentially the one true way of protecting our patient's general systemic condition. I do think that any tooth that cannot be absolutely cured of infective conditions, should be eradicated from the human system. I do believe however, that in many instances the medical profession are prone to direct extraction without a due consideration of a subject on which they are not thoroughly posted. I do not say that this applies to all physicians, but I do say that in a large degree the general medical profession is inclined to dictate to the dental profession as to how to handle oral conditions when they themselves do not understand the conditions.

I asked the question I did of the doctor regarding the dangers from the blood infection when we have the case of fistulous tract or a pyorrheal infection, as compared with a blind abscess, to substantiate this statement, for the reason that as admitted by the doctor, those cases where we have free discharge of pus, considered from a surgical standpoint, do not have the same bearing upon the blood stream infection as does that of the blind abscess. We go further and we see that the alveolar abscess with a free discharge is taking care of the system by the formation of a sequestrum which protects the general system against that particular seat of infection. I believe I am safe in saying that ninety per cent. of the dental profession, times and times innumerable are told by the medical profession that such a tooth must be extracted, without giving a minute's consideration as to whether that tooth can be saved and put into a normal and healthy condition.

We of the dental profession cannot always upon a first inspection say that a tooth can be saved, but the conscientious and thorough dentist can after a very short course of treatment, determine upon the possibilities, after making use of his radiographic examination and such other tests as he may require to form his opinion, and if he is conscientiously

Dr. Strietmann. I should say that that is simply a matter of general surgical conception. If we have a pus pocket anywhere that is draining freely, the pus will get to the outside rather than to remain inside. If we have a pocket of pus that is absolutely circumscribed, we get more or less absorption from it. The pus must be carried away; and those are the kind I think from which we get the periodical discharges of bacteria into the blood stream. The one that is draining outside will probably follow the line of least resistance all the time, and that would be through a long fistula opening down below. But if you have a fistulous opening from a tooth in the upper jaw, and it is in the neighborhood of the root apex, and you have no sinus draining along the side of the teeth, then that will be extremely difficult to heal up, because the root tip in many instances extends above the lower level of the abscess.

Question. The point is as to the danger from a fistulous tract, where the pyorrheal discharge is being swallowed; I wanted to get an answer to that.

Dr. Strietmann. In swallowing the organisms, I doubt whether we have very marked symptoms beyond a certain amount of toxemia developing, producing indigestion, because the hydrochloric acid is probably very well able to take care of all the infection. But we do get localized infection in the mouth sometimes, as canker sores on the tongue and cheeks, etc.

Dr. Kate Buck, Los Angeles. I wanted to ask the essayist, in case of an upper molar where you think the antrum is involved, do you think it wise to extract, or what should the procedure be?

Dr. Strietmann. I do not think that is always necessary to extract, but I should be guided by the results we get after the antrum has been treated. Let the antrum be drained.

In a certain case there was an antrum which was drained and opened through the nose and a permanent drainage canal established. It took about seven weeks for that to heal. The X-rays at that time revealed nothing wrong with the teeth. About two years later the patient began to have another discharge of pus from the antrum, but it was draining free so that there was no collection. It was merely a little pus draining through the nose. Then it was found on radiographing that the first molar root had an abscess around the root, and it was discharging occasionally and infecting the antrum. Then that tooth was extracted. But primarily I do not think that is necessary. It is not true

sure and secure in his belief that a tooth can be treated and put into a normal and healthy condition, I say that no physician should influence him to remove from the human anatomy that one organ of mastication.

Dr. Strietmann. I want to say this, in reference to the remarks of Dr. Wherry, that this is a matter of co-operation, and we have to determine the time when. There is no doubt in my mind but that the danger has been exaggerated from both sides, very markedly. I think the dentists have been too prone to save teeth that should not have been saved, and that we probably have taken the other extreme because we have realized the dangers in these cases, and we are trying to play safe; and if we see a man who has a heart valve that is infected by endocarditis, and we know that a small particle may break off from that and produce a pulmonary abscess or an abscess in his brain, we become very much concerned and as we realize primarily that this may have come from the teeth, and because we have in the jaw an abscessed tooth, we say that we do not think we are warranted in taking a chance by waiting, in the case of that particular individual. Such cases have probably led us to be over-enthusiastic about the removal of teeth. But I agree with the doctor that there are teeth that can be saved, and I realize the importance of saving them; but let us find out when the tooth can be saved, and when losing a tooth will save us from a great deal of trouble.

Dr. Norman D. Kelley. I think Dr. Strietmann ought to have a vote of thanks for his paper. It is one that is helpful to all of us, and it has sincerely struck the note of co-operation between the medical and dental professions. I move that a vote of thanks be tendered him.

The motion was duly seconded and prevailed and the vote of thanks of the Section was extended to Dr. Strietmann for his paper.

Adjournment.

September Seventh.

In the absence of the Chairman and Vice-Chairman, the Section was called to order by Secretary Renwick, who acted as Chairman.

A paper on "Pathological Conditions Found in the Mouths of Some Children,"* was read by Dr. M. Evangeline Jordan, of Los Angeles, accompanied by the exhibition of lantern slides.

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* See Vol. I. Page 154.

Discussion of Dr. Jordan's Paper.

The Chairman. This paper is now open for general discussion.

Dr. Robert Burns, Jr., San Francisco. Mr. Chairman, Ladies and Gentlemen: The greatest need before the dental profession to-day is to realize the true meaning of the word "doctor." Doctor means teacher. You must teach your patients and if you cannot teach the little patients now you can teach their parents. Better teach the little fellows because they will listen to you longer, and with a greater sense of appreciation than their parents who often think they know more about your subject than you do yourself.

But there is one thing which I feel the medical profession needs to be taught, and while I do not presume to say that the dental profession can teach the medical profession all there is to know about dietetics, at least they need to have brought home to themselves absolutely this fact, that what Nature intended for the preservation of hoofs, horns and hides, is not intended for little human babies. The sooner we can teach the mother of to-day that the most glorious function she can perform is to nurse her child, the better will be the children produced and the less tooth troubles they will have. (Applause.)

I want to subscribe most heartily to the doctor's assertion that mastication is the salvation of the teeth.

Mastication of Hard Food Desirable. It so happens that to-day is the tenth anniversary of my wedding, and Mrs. Burns and I have fought it all out and got pretty well adjusted in these ten years, but I can remember the very first time I ever gave a pretty strong crust of bread to my boy, when he was just about erupting his first baby tooth. She had been brought up on the notion of paps for children, and the fact that our little boy did not want to eat his milk and slop and predigest his food any more, but put it aside and showed an indication of a desire to chew, suggested to me that his reasoning faculties enabled him better to know what he himself wanted than I could guess at, or that somebody else who had merely written a book had told me to tell him, and I said, "When a child wants to chew, that is the time to give him something to chew on"; and ladies and gentlemen, if you will permit your children to exercise the function of their normal instinct you will come more near to being right than you will be when trying out somebody's theory on them.

Candy. All we have to do is to guard against over-development, and ill habits; and that brings me to the subject of candy. I do not believe in keeping candy away from children, but I believe they should have it at the proper

time, with due regard to the probability of its sweetness tempting them to eat more than they need. In my own home I felt that I would very much rather let my children eat all the sugar they wanted after they had finished their square meal. Then they would not be eating candy all the time and leaving it about their teeth to produce decay. I used to have lumps of sugar on the table, and they realized that they must eat a certain amount of nutritious food first, something that possibly did not taste so good, and afterwards they could eat all their sweets. I noticed that there were times when they gorged themselves on it and it did not seem to make them sick, and after they had all they wanted, there would be weeks, and possibly months, when they would not eat a portion of sugar, and they never have been candy eaters, and while their teeth are only average teeth, they have managed to get along fairly well.

Dr. Ray D. Robinson, Los Angeles.

Dr. Chairman and Gentlemen: It so happens that I practice in the same building with Dr. Jordan, and it also happens that I handle children almost entirely. I want to say that the fault in all cases is not with the parents. It is with you, and you, and you (indicating members of the Section impersonally). I have children come into my office who have been to two or three dentists. They have been there not once, but many times, for years and years, and yet they come in with deciduous teeth broken down and the mouths full of pus. When I say, "Why did not your dentist take care of these teeth," they say, " 'He said, there was no need to spend any money on them, because they were going to come out soon.' " And that is not from the lower walks of life, but from the very best families in a large city. You are responsible for that. No parent is responsible for it. They come in and I criticize them, and they say, "What should we know about it, when we go to our dentist; we pick out the best dentist we can find, and we go there for advice and ask him to take charge of these children and bring them along, as they ought to be brought along, and he lets these conditions continue. What are we to do?" I want to tell you gentlemen it is a serious problem to answer these parents. That is an arraignment that I want to make of the dental profession, and it is the severest that I could possibly make. The problem of dentistry is not so much a question of taking care of adults, as it is of bringing the next generation up to where they ought to be. The conditions in the mouths of adults are the monuments or disgrace of the dentists of the past. The condition of the mouths of the generation that is coming along is your problem.

Dr. H. B. Ward, San Francisco.

Mr. Chairman and Gentlemen: I would like to ask Dr. Jordan to tell us something about her method of managing these abscess cases? Just what you do

Doctor, in the way of treatment, curettement, or whatever it may be? both the surgical and medical treatment of these cases?

The Chairman. The discussion will be closed by Dr. Jordan.

Dr. M. E. Jordan. (Closing.) I have written a great deal on this subject, and I did not wish to repeat myself; so I have not touched any of the many sides that have been brought up this morning. Some of the questions I have answered in the past. This was merely a review or a report of a few cases. For instance, dentists seldom recognize scurvy in the mouth, whereas, particular attention must be paid to the diet of a child with scurvy. Dr. Marshall said yesterday that he had seen many such cases, and by the way he said they were feeding sailors prepared food and not milk;—this child I spoke of had been brought up on goat's milk, and still showed scurvy. It is not right that dentists should not recognize these conditions, and should not know that the teeth of the children who have rickets are apt to fall out sooner. It is not right that they should not know that two meals of mush a day will interfere with the teeth of a child when that child is older. Most of the dentists should have the children brought in when about six years of age. When a child is six years old possibly it will not have any teeth, and its general systemic condition will be such that the teeth when they do come in cannot be saved. After these teeth are put in shape, the child must masticate and keep them in proper condition. We are not changing the diet, but simply changing the form of the diet, just as in hot weather we require lots of water, but we like it in the form of ice. I had one child which was sent down from the North, under the care of a skilled physician, and I told the parents that they must change the diet. The doctor said that he could not do it. I said: "All I want is that you change the form of the carbohydrates; give the child something to chew on, something to polish the teeth."

Unless you have watched such children's mouths a year, as I have done, you cannot grasp the real change that comes in the constitutional condition of that child when it exercises the function for which those teeth were put into its mouth.

Education of Parents. When you speak of education—I have one chance that possibly the rest of you do not have so well, and that is that I work with pregnant women. I frequently am working for the mothers of the children. They come to me for prophylaxis during the entire period, which to my mind is the only safe way of avoiding dental caries, which is entirely unnecessary during that period. Then I have to educate them,

with the result that we have many perfect mouths among the younger patients, because the child as soon as it reaches the age of two years is brought to the office. We do a little prophylaxis month by month. If you find that the mouth is not kept in good condition, then there is a change made in the diet.

Candy.

I believe in candy given at the right time, if we are sure of the candy; but how many of you gentlemen want to eat rotten eggs and glucose and glue and varnish? And those are the constituents of most candy.

Of course, we have the idea held up to us that children must have candy. I have quite a number of cases of children who have reached the age of four years without ever having tasted sugar in any form whatever. The son of one of the dentists who was here at this convention from the South, is a small boy who is strong and well; until the age of four years, he never tasted sugar. He is now six, and has been allowed a small amount. I have had patients brought to the office where the mother had starved the child from sugar. Those children are better developed, and they have larger and stronger teeth. We all like sugar, but do not always control our appetites as we should.

These cases which I have mentioned have been cases that were selected because there was no particularly strong history of faulty metabolism on the part of the parents, with the exception of one, where the mother is mentally a little peculiar. It is, however, nothing extreme. They have been selected carefully, not from people where there is marked disease, or where the children have an inheritance, because we are saving a great many who under the conditions that existed a few years ago would have been swept out of the way, on account of the survival of the fittest.

Treatment of Pulpless Temporary Teeth.

When you are working for children you are obliged to get results; you cannot have them come into the chair six or eight times. Consequently we use remedies that give results. With the little girl where the tooth was dropping out, she had had abscesses lanced two or three times; she had been to two or three dentists, but no one had opened the teeth. She had three teeth with dead pulps. I opened those teeth and followed the regular routine. In most abscesses it is not necessary to open the teeth. I let them have a day to let the gas and pus flow out, and we use mouth washes and try to counteract the evil effects of swallowing the pus. Then I start in with formo-cresol which I always use. I never go into the root canals of deciduous teeth, because you cannot work in a child's mouth without danger of infection around the foramina, if you do

any instrumentation on the roots. I put the formo-cresol in and in two days I remove it. I also seal it carefully, and I use a very small quantity. I have yet to see a case where there was any distress resulting. When I have a fistulous opening which does not heal after the second or third treatment, generally the child has several of these. The tissues heal slowly on account of the lowered vitality. For instance, the little boy I showed, where there were nine or ten teeth with abscesses; you cannot expect repair quickly in such cases. After the second treatment I may leave the formo-cresol in for a week, but I do not push it into the root canal; no force is used; it simply works ahead, and acts upon the putrefactive matter; then we wash it out and there is no further trouble. I have never had any soreness. If we have a fistulous opening, and it does not heal readily with this treatment I use phenol-sulphonic on a little wisp of cotton and leave it in as a drainage tube; it is seldom that we have any trouble. Perhaps six months or a year later the child may have a recurrence of trouble around the root, and then we simply repeat the same treatment. We do not take out the treatment from the tooth. I fill with alum paste, because I have found that all the other preparations interfere with the normal resorption of the roots; but I have kept very close watch for many years on the resorption of deciduous roots, and I find there is no interference where the root canals are filled with a paste of alum and thymol, with glycerin and a little calcium phosphate as a carrier; and when the tooth is shed it would be difficult if you had not a record of the tooth, to say that it had ever had a dead pulp in it.

If there are any further questions I would be glad to answer them.

Dr. M. J. Sullivan, San Francisco. Do you find after the death of the deciduous pulps, that the roots of the deciduous teeth are resorbed?

Answer. Perfectly, if they are treated. You must remove all pus, and restore normal health. I can show you dozens and dozens of specimens. I have kept track of them so I could do that.

Question. You mean molars?

Answer. Molars or incisors. It makes no difference. Some people have asked me the question whether this treatment injures the permanent teeth. The calcification of a permanent tooth has gone quite a long way before there is any absorption of temporary roots.

Question. Is it not a fact that the cells which cause the resorption of the roots of deciduous teeth in the normal condition are destroyed by the process of inflammation in the development of abscesses after the death of the teeth?

Answer. I was taught that, Dr. Sullivan, but it has not proven to be true. Resorption goes on just as perfectly, apparently. I wish I had anticipated that this side of the discussion would have come up, because I would have brought up some specimens which I have, to support me. The resorptive organs must be in the peridental membrane as well as in the pulp itself.

Question. Then your method of treatment must be very complete in order to destroy all septic material in the apical spaces?

Answer. It must be, or it is worthless. That is why I said I went in and cauterized with phenol-sulphonic, so long as there is any indication of trouble there.

Question. Do you force it in?

Answer. I do. I go in with a sharp probe. I wind a wisp of cotton around a sharp probe and pump in. After the first or second treatment, if I do not have results, I do not try to save the tooth.

Question. After you have removed the contents of the pulp canal do you attempt to force the medicament through the so-called little pulp canal?

Answer. No, never.

Question. Where you have a sinus or a fistula, do you force medicament through the canal and out through the fistula?

Answer. No, I treat the tracts entirely separately. I do not want to force any formo-cresol through, but in ordinary cases the swelling will disappear, and there will be no further trouble; but where you have fistulæ, then I treat externally. If Nature, after the pus in the root canal is removed, does not repair the breach, then I assist by cauterizing with the phenol-sulphonic.

Question. In using the phenol-sulphonic do you force it through?

Answer. No, I just put it in on the cotton gently. The tissues are very spongy. The only force I use is to take a fine sharp probe, and go to the very bottom of the cavity through the alveolar process.

Question. Do you attempt to fill the so-called root canal or just the pulp chamber?

Answer. Just the pulp chamber, and there is a certain amount of filling of that by the child's mastication. I leave that in for several days with a gutta-percha filling over it, and I tell the child to chew on that with a good deal of force. When the child returns the alum paste has been forced into the root canals which are generally very small, and the gutta-percha is lying on the floor of the pulp chamber. I leave a little of it in as a protection.

Question. What is the formula of the paste?

Answer. It is alum, thymol and glycerin, equal parts. I think it is in Kirk's Operative Dentistry.

Question. Is there any objection to iodoform?

Answer. Very decidedly. You have your poor child's feelings to consider first of all. Everything must be done with the child as your first consideration. You are working without a rubber dam, and a small amount of iodoform in the child's mouth will probably send the child to some other dentist.

The Section thereupon adjourned *sine die.*

Discussion of Papers Presented in Section III.

Chemistry and Metallurgy

Section III.

Chemistry and Metallurgy.

Chairman: Dr. M. L. Ward, Ann Arbor, Michigan.
Vice-Chairman: Dr. Henry H. Boom, Philadelphia, Penn.
Secretary: Dr. H. A. Tuckey, San Francisco, Cal.

August Thirty-first.

The Section met at 9:30 A. M., and was called to order by the Chairman.

Dr. John A. Marshall, Berkeley, California, read a paper entitled, "An Acidimetric Study of the Saliva and Its Relation to Diet and Caries,"* which was illustrated by numerous stereopticon slides.

Discussion of Dr. Marshall's Paper.

Dr. Guy S. Millberry, San Francisco, Cal.

Mr. Chairman, Ladies and Gentlemen: It is with a good deal of interest that I open the discussion on this subject because I have followed Dr. Marshall's work for the past two years and have been quite familiar with each step of all the work he has undertaken to present to you at this time.

He has a serious problem before him in defending himself against the statements presented in Pickerell's work and so liberally accepted by the dental profession at large. During this Congress a dozen papers have been presented which indicate that Pickerell's views have been accepted as a finality in reference to the chemical action of the saliva. Dr. Marshall has shown very clearly that there is a large source of error in Pickerell's work, and therefore in all this scientific endeavor in dentistry, we must have within our minds an open compartment, or a middle compartment where we can accept such things as have been presented to us to-day, and accept them, I might say, temporarily, not as finalities or positive facts, because we may find that to-morrow the statements that are supposedly indorsed by scientific evidence are at fault. I think that all of the work that is being presented to-day in this matter is work which must be accepted as not having a complete finality. In fact, Dr. Marshall has

* See Vol. I. Page 209.

shown us clearly that some of the work which Pickerell has presented is seriously at fault, yet we have clinical evidence to show us that the psychic activation of the saliva, the chemical activation of the saliva, as well as the mechanical activation of the saliva, plays an important part in changing the constituent of it. We all know without question that when we have a taste of luscious fruit, or pass the door of a kitchen and get the odors from within, they are particularly enticing and, "our mouths water," in plain English. There is excited a salivary flow which will increase the quantity of the saliva. These things are clinical facts and the experimental work must be carried much further before we accept the statements presented by Pickerell and Dr. Marshall.

Dr. Marshall has shown us that further experimental work must be conducted along these lines before we know where we stand. I am not as yet unconvinced that the diet is the most important factor. I feel we must look to the diet in the prevention of caries, because such a small percentage of our people are in the habit of indorsing prophylactic methods in taking care of the teeth.

The work which Dr. Marshall has presented opens up another thought to me. He stated in his paper that an acid condition of the saliva as such, or an alkaline condition of the saliva as such, does not bring about immunity and does not bring about caries. He further states that the acidity of the saliva or the alkalinity of the saliva has a modifying influence on the growth of bacteria and the bacteria do not develop in certain extremely acid conditions. We know that the lactic acid forming bacteria will not live in their own acid practically; that it is destroyed by the acid which is the result of its activity, and that acid must be neutralized; and the normal neutralizing power is the alkaline salts of the teeth. If the acid is too strong the bacteria dies. This is certainly a logical presentation of the matter. If decay or caries is present, and due to lactic acid-forming organisms, the question of acidity and alkalinity of the media in which these organisms live is an important factor. Therefore, the question of the alkalinity or acidity of the saliva is an extremely important matter because it regulates the life cycle of the organisms. If they cannot live in a media which is extremely acid, they cannot have any destructive influence upon the teeth.

Caries Primarily a Disease of Childhood.

Another thing: In experimental work which Dr. Marshall has presented, and particularly in institutional work everywhere, all these investigations have been made upon adults. Dental caries is primarily a children's disease. It is prevalent most frequently between the ages of four and sixteen; therefore, investigations to determine the condition of the saliva or the alkalinity of it, and the influence

of diet upon it, should be carried out in institutions, in public schools, or reformatories or in places where the children can be reached, and the problems can be studied from that standpoint rather than from the standpoint of adult life.

We need to give all forms of encouragement to work of the kind which Dr. Marshall has presented to us this morning. It is deserving of our sincere and earnest co-operation, and I trust the time is not far distant when the professional men on this continent will have an opportunity to enjoy the immediate benefits of researches of this character by such men in the Middle West as Dr. Hartzell, of Minnesota; Dr. Price, of Cleveland; Dr. Bunting, of Ann Arbor, and Dr. E. Gies, of New York.

I wish to congratulate Dr. Marshall upon his efforts, and I hope the profession as a whole will be willing to lend their full indorsement.

Dr. M. L. Ward, Ann Arbor, Mich.

Mr. Chairman and Members of the Section: The essayist has pointed out two or three things this morning that deserve recognition. The first is with regard to the difficulties that all of us have in determining acid and alkali in the saliva. I am very glad indeed to have him present so much confirmatory evidence as he has this morning. I am grateful to him for it. I think everyone who has had anything to do with work on saliva has found, or has had brought to his attention the very thing the essayist mentioned, namely, lack of uniformity in the results as regard acid and alkali present. That has been pointed out to us for a number of years.

Beginning about eight or nine years ago Dr. Joseph Head, of Philadelphia, in conducting some experiments discovered the effect of lactic acid on certain dental cements. He found that if he used one to one thousand, one to two thousand, and one to five thousand of lactic acid in water it would produce given results in dissolving cements.

There would be a certain result upon the teeth or the tooth structure, the enamel particularly, but when he puts lactic acid one to one thousand, one to two thousand, and one to five thousand into the saliva there was a lack of uniformity in his results. Since that time we have had what is known as the cyanide of potassium craze, in our part of the country, and that has been advocated as a "cure-all" for certain types of caries, in that it was supposed to be a solvent for the plaques. This theory was taken up at the National Dental Association meeting in Cleveland three or four years ago. There was a combined attack in which I was in the Army that attacked Dr. Lowe, of Buffalo. We pointed out again the difficulties we had to contend with in working on the strictly salivary analyses, working on dental cement in getting uniformity in tests for alkali and acid. I think the problem to be solved is "what constitutes a test for the

solubility of a dental cement?" We can find a large number of agents that will dissolve certain cements under given temperatures. In a watery solution the supposition is that the moment we put that in the saliva we get a variety of results. The question that has appeared to me: Is it the alkali or is it the presence of some inhibiting influence (colloids have been suggested) that makes the acid active sometimes and not at others? That is the question before us to-day from a salivary standpoint in my estimation, not how much acid and alkali is present, but how much there is in the inhibiting influence of the colloids or some other agent that keeps it from acting.

There is one important point to which the essayist has called our attention and that is the tendency on the part of Pickerell and other men engaged in this work to arrive at the conclusion that strongly alkaline saliva is the medium that is best for bacteria to thrive in. Wherever we see heavy alkaline media, we usually find that caries is rampant. Where there is an acid saliva the caries is not rampant. The tendency is to get away from the use of alkaline mouth-washes and tooth-powders and not be so afraid of the so-called acid mouth-washes as we used to be.

Dr. John A. Marshall, Berkeley, Cal.

Dr. Millberry spoke of one thing which perhaps I did not make clear. In discussing the tables I referred to acidity and alkalinity in the normal resting saliva as being non-indicative of the condition of the mouth. I did not mention anything about a *comparison* between the normal resting and the activated saliva. It is this exact comparison which appears to me to be an influencing factor in determining immunity. That is to say, where we have a saliva, as in the case of caries, in which the change of the total neutralizing power, is small, say five per cent., we may find there a condition different from what we have in the immune mouth, where the difference between the normal resting saliva and activating saliva is much greater.

Dr. Ward spoke about the cyanide of potassium problem. It was my good fortune to be at the International Dental Congress in Berlin in 1909, when that theory was discussed. At that time I really became interested and got started in dental work. It seems to me that Dr. Gies, of New York and Dr. Bunting, of Ann Arbor, Michigan, have so thoroughly exploded the KCNS theory that any words from me would be useless. The experiments performed and deductions drawn appear to indicate that the cyanide radicle (in itself essentially poisonous) when taken in certain amounts, becomes "de-toxified," and therefore would not exhibit any inhibiting influence upon bacterial growth when excreted in the oral mucosa. It follows then that the amount of cyanide which we

could take into the body with any degree of safety would be detoxified and the effect upon the organisms of the mouth would be practically nil.

Dr. Guy S. Millberry, San Francisco, Cal., read a paper on "Some Refractories Used in Dentistry."*

Discussion of Dr. Millberry's Paper.

Dr. John A. Marshall, Berkeley, Cal.

Dr. Millberry spoke of working the clays in the manufacture of porcelain. This subject is one which has been very thoroughly investigated, meaning by that that there have been thousands and thousands of *Marks* spent annually by the German Government in finding exactly the correct working efficiency of the clays which they use in the manufacture of porcelain.

In going through the *Koeniglichten Porcellan Fabrick, Charlottenburg bei-Berlin,* the one thing pointed out to students was the aging or fermenting process. It becomes a routine practice in that factory, when they receive the clay from their mines, to put it in a damp cellar and to work it carefully with water. When it has acquired a definite consistency, it is left to age anywhere from four to six weeks. After that time it is again worked over and taken to the factory. This is the so-called ferment or aging process. The practice is not general throughout all the German factories because in Dresden the clays which come from one particular part of the Empire are worked raw. In another case they are aged ten days to two weeks, but in the Berlin factory it is a general procedure and the routine practice is to age these clays from four to six weeks. A definite temperature is maintained during all this aging process. This factory is the private property of the Kaiser, and it is said they cannot put out uniform porcelain without shouldering a large loss. Whether the Kaiser is doing that now or not, I cannot say, but the authority for that statement is the man who has charge of the *Koeniglichten Porcellan Fabrick, Charlottenburg bei-Berlin.* When I was in Dresden, I found the material which they used there is not of so high a grade. It has not the reputation of the Berlin porcelain, and the latter factory maintains that the only way to keep the grade up to standard is by the aging process. Whether or not this would help in the making of porcelain teeth, I do not know.

Dr. Guy S. Millberry.

I did not go into the problem of porcelain very extensively because everybody has studied it from a technical standpoint. There have been many inquiries

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* See Vol. I. Page 201.

made as to the nature of the chemical reactions of porcelain. The fusion of porcelain is a physical change which is termed pyro-chemical change in part. Mr. Marshall has given us an insight into the chemical reactions which take place in the preparation of the material for our use.

My object in presenting this paper was this: Dentists, as a rule, have no definite source of information regarding refractories, and such information as I have collected has been taken from innumerable sources as well as from practical experience in developing electrical furnaces in our department and in various departmental uses. I felt at the time I was asked to write this paper that this information might be of value to those who do not know where to get it.

There being no other papers in the hands of the Secretary scheduled for this Section, the Section then adjourned *sine die*.

Discussion of Papers Presented in Section IV.

Oral Hygiene and Prophylaxis

Section IV.
Oral Hygiene and Prophylaxis.

Chairman: Herbert L. Wheeler, New York City.
Vice-Chairman: W. W. Belcher, Rochester, N. Y.
Secretary: Robert W. Hall, Salt Lake City, Utah.

September Second.

The meeting of Section Four was called to order by the Chairman, Dr. Herbert L. Wheeler, who immediately called upon the Secretary, Dr. Hall to preside, in the absence of the Vice-Chairman. Dr. Wheeler then addressed the Section.*

Dr. Hall. If there is anyone who would like to discuss this address, we will have time, and I would be glad to have them do so.

Discussion of Chairman's Address.

Dr. Guy S. Millberry. I should like to know what Dr. Wheeler's views are with regard to polishing instruments, and particularly his views in regard to the tooth-brush; also his views in regard to natural oral prophylactic methods—the influences of certain kinds of foods upon these problems, my thought being that from an educational standpoint we must consider this phase of a problem, in order to reach the masses, and I should like to know his opinion and also a more detailed view of the nurse service. If this nurse service is going to be impracticable, what solution has he to offer?

To sum up: The question of the tooth-brush, the elimination of foods which favor caries, and a more elucidated view of the nurse problem. The busy practitioner does not always care to do this work in children's mouths.

Dr. Wheeler. I have been asked by Dr. Millberry to state my opinions. O course, this can only be done in a brief way, because this subject would require a book to take it up in detail.

To state what I consider the value of the tooth-brush, and polishing instruments, we must go back to the foundation of things.

* See Vol. I. Page 223.

It was not so many centuries ago when the human race was in a primitive condition and there was no need of dentists, probably, and Nature, in the process of selection, has undoubtedly developed a mechanism in the human mouth, which, if normal, is practically self-cleansing. It is only so-called civilized conditions, and probably the wonderful progress in transportation, that has been responsible for the tremendous inroads upon this mechanism by dental caries.

Now, a tooth-brush is only an adjunct. The friction which our ancestors received was from the coarsely ground food, and from the fibrous meat which was not kept in cold storage, nor shipped thousands of miles and preserved many days and weeks and months, until it is so soft one does not need teeth to masticate it; all cleansing was done by the foods that the individual ate.

To-day we must supplement that, because everything we eat is soft. Our cereals are ground fine, and everything is cooked until the knife is never used; the fork does it now although that fork is very blunt.

The tooth-brush is to assist this cleansing which obtained centuries ago, and that is all the use there is in all the polishing instruments of any kind. I think there is little danger from the brush. I am less afraid of it than most people. When it begins to produce injury to the membrane—(because you are getting an extra strain which Nature has not provided for, and the judgment of the majority of dentists is not particularly good as to the amount of pressure to be exerted in this work)—there is as much danger of doing physical injury to the mouth as there is good.

On that ground, I am afraid to go to the third question: As to what will happen with dental nurses—unless these nurses are restricted to conditions which will permit them to be carefully directed by a thoroughly educated dentist, I have doubts.

Of course, we are at the present time, in a period of evolution as we always are. For instance, we are all going to begin a four years' term in 1917 in the dental colleges, and the older dentists are throwing up their hands in holy horror. They are asking if three years are not enough. You cannot turn out a product in four years that is any farther advanced than the first step on the ladder. (Applause.) As a teacher, I believe that we need six years. If you get ten per cent. of students that have any judgment, you are doing pretty well. When you take a dental nurse and give her six weeks' training under a dental enthusiast, you have not developed judgment, but if you can put her under the control of an experienced man, one who has, perhaps, developed judgment, so that she is simply an extra pair of hands, she can be utilized, I believe, to advantage,

and I would favor a nurse under such circumstances; but I do not favor nurses in any conditions under which they are not carefully and thoroughly prohibited from doing work by their own judgment. While the medical nurses are useful, they merely take orders from the physician and do what he says, and the physician is responsible; the dental nurse must be the same.

I know a physician who is very much of a gentleman, but he states that when he takes a new nurse, whom he recommends to his patients, he takes her and in the first month swears at her until she thinks he is a demon, until he gets her so trained she will do what he tells her; then she is a pretty good nurse.

If you can get your patients to eat simple foods, you will be doing much. I do not know where to get foods that are simple, and of course, if they could be gotten, there would be less need for dentistry, and dentists. And dentistry must come to the point of using discrimination in the relation of foods to the welfare of the mouth, just as much as the physician has, and until he does come to that point—if you have a dental nurse for every school child in the United States, you could not save the teeth, under the present conditions, of all of them.

As I said in my address, some are immune anyway, and you waste your time on it. There are some for whom, if you had them every day, you could not prevent decay.

It comes to a question of judgment. Dentistry is not so much to develop a beautiful piece of work, as it is to simply restore the masticating ability of the patient. The dentist of the future must know how to decide what the physical condition of that patient is, and what it should be; to avoid dentistry; to prevent decay in cases where you have tendency to decay, and to realize that when you have a case that is comparatively immune, you should pursue a course of "watchful waiting" and let it alone.

Prophylaxis, therefore, covers not merely the blind, unintelligent, irresponsible polishing of a tooth surface; it includes the matured judgment that comes from knowledge and experience, that directs that where it is needed, and avoids that where it is not needed. (Applause.)

Dr. Wheeler. The next paper upon the program is a paper the author of which is not here.

I expected Dr. Keyes, from Boston, Mass., to come, but I have not seen him. He has done work in public institutions for some time and he has had remarkable experiences.

He found in one of the Catholic institutions in Boston that the filling and care of the teeth of the children reduced contagious diseases from

something like fifty per cent. and sixty per cent. annually to two or three per cent. annually. If Dr. Hall, our Secretary, will read this paper I think it will be of interest to you.

Dr. Hall here reads the paper of Dr. Keyes, of Boston, Mass., entitled, "Dentistry in Public Institutions (Insane)."*

Dr. Wheeler. This paper is before you gentlemen, if any of you have had experience along this line or would like to say something upon the subject the Chair would be pleased to entertain your discussion.

Discussion of Dr. Keyes's Paper.

Dr. Guy S. Millberry, San Francisco. Mr. Chairman: It may interest you and the members of the Section who are present here, to know something about the conditions in California in the hospitals for the insane. There are four of them, namely, Agnew State Asylum, Napa Insane Asylum, Stockton Asylum, and Southern California Asylum, the inmates varying from 1,200 to 1,700 in each institution.

One peculiar fact is, that these institutions are under the supervision of medical men, and as medical men I expected they would take considerably greater interest in the condition of the oral cavities than was manifested in those institutions.

The work, until last year, was under the management of a man known as "The State Dentist," whose duty it was to visit the various institutions, such as the Home for Feeble-minded and hospitals for the insane, and give such treatment as he could, which consisted merely of extraction and in some cases, plate work. The salary paid at one time was $2,400 and he was permitted at the same time to conduct a private practice, and the service in my judgment was very inefficient. In fact the dental equipment consisted of a few pairs of forceps, a few chairs, etc.

About a year ago the institution at Stockton employed a dentist at a salary of $1,400 a year, who gives his full time to the service, and he is giving his first consideration to those who are suffering from disorders, and teeth needing extraction. The next step, in his policy after extractions, is the cleansing of the teeth, then to do such work as he considers necessary. He is assisted in this work by inmates of the institution and he is receiving a great deal of co-operation from them.

I do not believe I have ever witnessed such foul mouths in any of the clinical material in our institutions as I found in some cases in the institution for the insane. On the other hand, some of the patients pre-

* See Vol. I. Page 226.

sented such conditions as you might find in your best private practice. They were just as cleanly as those of sound mind. I think we, as dentists, have before us the duty of introducing into these State institutions, the employment of full time dental service for those people who are charges of the State. (Applause.)

Dr. L. G. Mitchell, Oklahoma City, Okla.

Those of us who have been interested in this work and who have endeavored to get measures through our legislatures that will take care of these matters, know how difficult it is unless we first educate the laity.

I wish to emphasize the importance of educating physicians to the need of oral hygiene. For many years they have been treating the effect and paying such little attention to the real cause that it is difficult for us to get results, and it seems to me it is putting the cart before the horse, when we try to get in these needed improvements without first educating the physicians, because we must have their aid.

Legislation, for obtaining these appropriations, must come as a result of public opinion; must come as a result of the physicians seeing the vital need, and we must have their co-operation.

Joint Meetings of Physicians and Dentists.

I believe one of the logical means to this end would be joint meetings of our local societies—physicians and dentists—with appropriate programs.

About two years ago we tried to arrange this. We had a good program but not a single physician attended, and I declare, I was so disgusted I said I would never again try to arrange a similar program.

In two years, however, in our public schools and work over the State, we so interested our physicians that they asked for a joint meeting, and it was a most enthusiastic meeting. The Chairman had to limit the speeches to five minutes and all wanted to talk. As a result, the physicians are co-operating with us in this work. That means that when the Legislature meets again, we will have the co-operation of the physicians in this publicity work.

Education of the Laity.

Another point: The education of the laity must come through publicity, by readable articles prepared especially for the laity that will attract their attention; that will gradually educate them to these needs; then when we ask for appropriations we will have behind us the necessary public opinion.

I feel that this paper we have just listened to, gives us an insight

into a condition that is, of course, most deplorable, and which demands some attention.

I would suggest that the paper be prepared so as to reach the laity by general publicity.

Dr. Emma Reid, San Diego, Cal.

I believe that no class of patients are so neglected as are the insane, and consequently, the response of those patients has been so marked that I feel we have a special obligation to them.

Mental Recovery After Dental Treatment.

I had one patient of whom I think at this moment; a woman of perhaps forty-two years of age, who, after I had labored with her an hour and a half, permitted me to examine her mouth. She would not be properly seated in the chair, but placed the knees toward the back of the chair. I could not operate for her in any position except that. I found the teeth badly broken down; mostly roots; bad decay; a general abnormal condition of the mouth. After nearly three months I had succeeded in extracting the bad teeth and putting the others in good condition. After nine months the woman was almost normal mentally. She and her physician as well, attribute her recovery to the restoration of her mouth.

Second Case.

A little girl who had had epilepsy from the age of two years. Her mouth was in a very bad condition, and after restoring the mouth and having her adenoids removed, there was no recurrence of the epilepsy.

I have had a number of abnormal mental patients and without exception everyone has responded mentally through having the mouth put in order.

Dr. Homer C. Brown, Columbus, Ohio.

Unfortunately I did not hear the paper, but I assume that it had to do with institutional work—dental work—and from the discussion that followed I take the floor to present some conditions that exist in my State.

I agree with the discussers with reference to the necessity of educating the laity in order to secure relief for these State wards. In our State we have twenty-two State institutions under the control or supervision of the State Board of Administration. Of course, each institution has its individual superintendent.

A few years ago conditions were different. We had trustees for each of the various institutions, and recognizing the necessity for dental service of many of these wards (and I might say at present we have about twenty-two thousand in these various institutions) I prepared a bill and

had it introduced into the Legislature providing an institutional dentist in every one of these institutions having one thousand or more inmates. It also provided for the necessary dental service in the institutions having a less number.

The incoming Governor died within a very short time after the session of the Legislature met, and that threw affairs up in the air for the time being. The next Governor recommended that a board of administration similar to that which we have now, have control of these institutions, and we united our efforts to secure the legislation referred to.

It so happened that probably the most unfortunate thing occurred. A superintendent was appointed as a member of this board, who was the one individual in the State, at the head of an institution, who was most opposed to such a course. Naturally anything of a medical or a dental nature was referred to him, he being the medical representative of the board; but I am very glad to say that conditions have changed. He is now seeing things from a different viewpoint, and it was only recently that I had him in my chair and he said; "You don't know how near you are to having your way at this time. We now recognize the need for this service, and we are gradually giving it to the institutions or to the wards just as rapidly as we can get it; we have practically adopted the plan that you outlined to us several years ago."

There is a great need for this work and I think those who are so unfortunate as to be admitted to these institutions, should have the necessary dental service just as their counties, if necessary, should provide them with clothing and maintenance.

Dr. Weiss, Havana, Cuba.

I think that this is of very great importance. I know by my own clinics that oral disease is an important factor in the mental state, and I know too, by my own experience, that many women have mental troubles, and as my lady colleague said, after proper treatment they become normal.

I am a dentist and I fight with the medical men all over the world. They do not know a thing about dentistry. (Applause.) And that is the trouble. I can say this, because I too am a teacher of dentistry in my country. The medical teacher still has no appreciation of the importance of the mouth in relation to disease.

How are we to convince the people and instruct them if we cannot convince the doctors? Perhaps we can teach the people, but we must use a scientific campaign to educate the medical men upon the importance of the mouth to health.

I thank you. (Applause.)

Dr. Garrett Newkirk, Pasadena, Cal.

One word in regard to these very important and truthful things that have been said. I would simply add something in reference to the publicity through our daily papers.

Our people depend upon the newspapers, as a rule, for information. The "laity," as we call them, depend upon papers. They read nothing else, as a rule. That is where they get the information from which they form their opinions, and every day or two we see some article with reference to dentistry (also medical matters, perhaps) that we know to be inaccurate, for it comes from some irresponsible source, and is written for the purpose of exploiting some private interest, or of being sensational for the purpose of attracting attention and to boost the circulation.

Now, any intelligent editor would be glad to publish an article from a responsible dentist, with reference to any subject in which he is interested, provided he makes it not too long; provided he makes it interesting, and best of all, if he illustrates it by some concrete example, showing how these things work out.

I say any editor—and we have one in Pasadena who would be glad to publish anything of that sort. We are altogether too modest—some of us—about what we call advertising ourselves. We might do a great deal if we would, each of us, by furnishing something of that sort; or those of us who are gifted with writing, might furnish articles to the daily papers of an educational character along the lines of dentistry, and especially on mouth hygiene, and that would reach the medical man too.

Whenever you reach public opinion, you reach the medical men. You can reach them in two ways, directly and indirectly, and we ought not be too modest about jumping into the medical society and demanding attention to these matters that we know are of such great importance. We must keep pounding away until an impression is made. (Applause.)

Dr. Mitchell, Oklahoma City.

We recognize the need of newspaper publicity, but we also recognize the fact that jealousy is just as prevalent among professional men, as, for instance among musicians; and if one man who is capable and willing and has his heart and soul in his work on mouth hygiene in these schools, wants to do this—the papers say, "If you will write this article we will be glad to publish it, but we want a name connected with it." But if he signs his name his whole society criticizes him.

Now in our city, we have a Publicity Committee and have the Committee simply to sign such articles as that, just as in my school work I have instructed the Committee, in going to the schools and lecturing, to withhold the name of the lecturer; so in our publicity work we have arranged

to cover the situation, so as to avoid this unpleasant and unjust criticism by having it simply signed: "The Publicity Committee of the Local Dental Society."

The Chairman. Gentlemen, I will ask the discussers to confine the discussion to the subject of the paper.

Dr. J. C. McGill, Vallejo, Cal. I wish to speak on the point of co-operating with physicians. My physicians are responding very rapidly and co-operating with the mouth hygiene movement, but there is one point that might be driven home: the education of our particular patients. When we look about this Convention and see the number of dentists here, we can recognize what a power each dentist might be as a unit in the educational movement, and while newspaper publicity might get us into trouble, we will not have any trouble from each man talking to his patients and emphasizing the idea of the importance of mouth hygiene. The trouble is that most of us are too busy, working on too many people or thinking too much about financial returns. If each man were alive to this matter, and would teach his patients the importance of oral hygiene there would be a revolution and it would not take long.

Dr. Wheeler. I would like to say that in New York State a number of insane asylums have Resident Dentists, and that has been brought about largely by the physicians in charge.

Physicians, like dentists, vary. There are some intelligent ones and some that are not. (Applause.) In many of the large institutions for the insane in New York, the introduction of a dentist has been the work of a physician in charge. In some cases we have met with opposition from the physicians, but rarely among those in charge. It has been mainly among what might be called the rank and file. The New York State Dental Society maintains a committee whose duty it is to look into the question of how the wards and insane asylums and other institutions, as well as the prisons, are being cared for in regard to the welfare of the mouth and teeth, and in that way we are making gradual progress.

We found in New York that we could do much better service and obtain better results by doing our work quietly. We have no publicity committee and we pay no attention to that. As a matter of fact, when I secured $40,000 from the City of New York to establish dental health in the public schools, I was told very bluntly by the Mayor and others that if it was done publicly it would be killed. It has been done by the officials and they do not want it made public.

I am simply describing our situation in New York.

(Dr. Millberry here read the paper of Dr. Mattie K. Wyman, Seattle, Wash., "Caries in Children's Teeth; to Prevent, Retard and Cure," etc.*)

The Chairman. This is a very interesting paper from a lady who is evidently greatly interested in the subject. We have not a paper of this length on the program, and we are very much indebted to Dr. Millberry for reading it. Any person here is welcome to discuss the paper.

Discussion of Dr. Wyman's Paper.

Dr. Newkirk. The paper is good, but the important thing is the first third of it—the new part—which is really original and worthy of our attention, and I hope that when the Transactions are published we will not fail to look carefully over the first third of this paper that deals with prenatal conditions in children. It is very ably presented.

Dr. Jordan, Los Angeles. There are one of two things which I am sorry the essayist did not say. When the essayist was quoting from Pickerell, she did not say (which I consider most important) that the food should be very hard in order to stimulate the growth of the jaws, and thus supply room for the development of permanent teeth.

To my mind, that was one of the strongest points in Pickerell's book, and I think that by chewing hard things one might always do away with a tooth-brush.

I have not found it advisable to use iodoform. We use a carbolized dressing dipped in cotton and packed in the cavity. It will stay in several days, causes a certain cleansing of the cavity and makes it much more easy finally, to remove the decay without pain.

In extremely sensitive cavities we remove the decay and insert the dressing a second or third time.

(The next paper read was entitled, "The United States Indian Service Field Dental Corps, etc.,"** by Fdo. E. Rodriguez.)

Dr. Wheeler. We certainly are greatly indebted for this very interesting paper.

It is nearly one o'clock and as this is a paper that requires more time than we have for the proper discussion, I would suggest that the motion be offered that the discussion of this paper be taken up at our session to-morrow.

* See Vol. I. Page 234.
**See Vol I. Page 291.

Dr. Millberry. I second the motion and suggest that we express our appreciation to Dr. Rodriguez, for his contribution to this Society.

Dr. Rodriguez. I thank you very much, Mr. President and Gentlemen.

Adjournment.

September Third.

The second meeting of Section IV was called to order at 9:00 A. M. by the Chairman, Dr. Herbert L. Wheeler, of New York City. Dr. Robert W. Hall, of Salt Lake City, Denver, acted as Secretary.

The Chairman. The order of business this morning will be the discussion of the paper read at the last meeting by Dr. Fdo. E. Rodriguez.

Discussion of Dr. Rodriguez's Paper.

Dr. Garrett Newkirk, Pasadena, Cal. I should like to express my appreciation of the paper by Dr. Rodriguez with reference to the work that is being done by our Government for the Indians, and through this work, for the whole nation. And I wish to say that this paper represents the true, scientific spirit, accurate, painstaking observation of facts, and the records of those facts; correct appreciation of the principles involved, of the results obtained, of the methods of work, and all those important matters appertaining to this question. It is such work as this of Dr. Rodriguez that is going to tell for success and high achievement.

The Chairman. Dr. Rodriguez's paper was so complete in itself that there is little that can be said in discussion. I will call upon Dr. Rodriguez for his closing remarks.

Dr. Rodriguez. I appreciate very much the courtesy that has been extended by the Section in listening to the paper. I expect that in the future I shall be able to present this subject in a more complete form. My paper states that it is only a preliminary report, and as such it was my intention only to give an outline of the plan of work that is being done and what has been accomplished by all the dentists in the field. Thank you very much.

The Chairman. The next on our program is a paper by Dr. Edwin P. Tignor, of the United States Army, on "The Educational Value of Oral Hygiene in the

Army."* This is not a long paper and in the absence of the Secretary, I will read it to you.

Dr. Tignor was not able to be present. This man is stationed at Fortress Monroe, Virginia. He is one of the most lovable and capable men you could meet, and very much enamored of his work. These men are not well paid, and it requires a high degree of self-sacrifice to serve in this position.

The Chairman then read Dr. Tignor's paper.

The Chairman. You have heard this paper. Is there anyone who would like to discuss it?

Discussion of Dr. Tignor's Paper.

Lt. Cassidy, U. S. A., San Francisco. In regard to the last few sentences of this paper, the remarks about the standards of the examination, I want to say that in the last examination held for entrance into the Army Corps, out of twenty-three candidates but two were appointed. Those men at the end of three years must take another examination. A percentage of two in twenty-three is very low, showing that the men are not properly educated.

Dr. Garrett Newkirk. It seems to me that Dr. Tignor has given us a model paper, concise, and a clear statment of facts. In the first place, it is evident that Dr. Tignor's heart is in his work, and he is very conscientious and strictly honest.

There are two or three things shown conclusively by a number of our dental affairs. We need to place twice as many, if not three times as many in our Dental Corps, as we have now, to meet the requirements of the Army. That is certain. We have shown that beyond a doubt. How are we going to do it? How are we going to get these facts before Congress and before the people who influence Congress, so that we may accomplish something. I have no doubt that if the facts set forth in this paper could be presented through the public press, in such a way as to reach a large number of citizens, we would have a public sentiment which would be effective. Or, if the whole dental profession understood and realized the importance of it, they could influence public sentiment to bring this about. We certainly need a vast increase in the Dental Corps. My idea is to get at something to produce results.

Lt. Cassidy, U. S. A. Right there is the point; we should have an increase to double, or three times as many men. We could not get three times as many men, if they were

* See Vol. I. Page 265.

allowed. Men will not enter the Corps because the conditions are not attractive enough. The conditions of the service do not draw the best men, as shown by the examinations we have had. When Congress is prevailed upon to give the profession a better standing in the service, we can then expect men of higher caliber in the service and more of them.

The Chairman. Dr. Tignor not being able to be present, there can be no closing of the discussion, so we will pass the paper. The next paper is one entitled, "Next Steps in the Development of Oral Hygiene Among School Children,"* by Edwin S. Brown, of New York City. Mr. Brown is not a physician, but he is a man who has charge of the work of the Anderson Foundation. Mrs. Anderson, of New York City, a very wealthy lady, gave a large sum of money, the income of which was to be used in research work to find the best way of increasing the physical welfare of the children of our great city. This fund is administered under the auspices of the Association for Improving the Condition of the Poor. Mr. Brown has been of great assistance at times in working out the problem of securing ways and means for carrying on the work in the public schools in the Department of Health.

It is not a long paper. It contains some things which all of us may not be willing to agree with, but it brings out some points of considerable value. I will ask the Secretary, Dr. Hall, to read the paper.

Dr. Hall read Mr. Brown's paper.

The Chairman. You have heard the paper by Mr. Brown. Would anyone like to discuss it?

Discussion of Mr. E. S. Brown's Paper.

Dr. Gillespie, Los Angeles, Cal. I have been interested in oral hygiene for some time, and I believe the place where we must begin is in the home. If you teach the child in the school oral hygiene, when the examination is made and word sent home to the parents that the child must be taken to the dentist to have the mouth taken care of, it often produces antagonism, because the parents do not know the value of the temporary teeth. They do not understand the consequence of the loss of the first permanent molars, and often do not know that the molar coming in at six years is a permanent tooth. It decays and is lost oftentimes before the dentist sees the child. The parents resent an arbitrary demand that the child must be taken to the dentist, and we do not get the co-operation of the parent. Con-

* See Vol. I. Page 269.

sequently, the dentist is handicapped. So it seems to me that the place for the commencement of oral hygiene is in the home. If we could get some means of teaching the child and the parent also, we would accomplish much more than we can by simply teaching it in the schools.

Dr. Hurd, Hoquin, Wash.

In regard to the matter of teaching oral hygiene in the home, I would like to say a word, as a member of the School Board.

We have a school nurse for that purpose in our town, and we have been trying to teach not only the children, but the parents as well. We employ a school nurse, and instruct her to go into the homes and try to give some instruction to the more ignorant class, and sometimes also to those that are not quite so ignorant, in regard to the care of the teeth.

In that way, we try to get it into the homes, as the last speaker suggests, as well as into the schools.

Dr. R. E. Shank, South Bend, Wash.

I am a neighbor to Dr. Hurd. We are just a few miles apart. The principal reason I came here this morning was to hear more about oral hygiene to be taught to children.

In our town (I am also a member of the School Board, as Dr. Hurd is) last year I gave three lectures in the public schools at different times upon the care of children's teeth and what every parent should know in regard to the care of deciduous teeth. During the year I also had films sent around to the different schools to be put upon the screen. I assure you that no man in a small town who has not gone into the schools and given lectures, and done these things that would bring the parents to recognize the fact that the deciduous teeth are an important factor to the child, knows what those things will bring him as the result of the interest of the child and also of the parents. Within a month after the time I delivered these lectures, you would be surprised to see the parents, who had never taken the children to a dentist, that came to my office to have the children's teeth examined and find out what procedure was best to have these teeth taken care of. I tell you, gentlemen, it is our own fault in the small towns if we do not get in closer contact with the parents and children. We do not recognize the fact that we must go out and preach this gospel to them. They will not come to us. We must get right down among them, and the only way I see to do it is to first get the children interested, from five and seven to nine years, and soon they will be preaching this at home, telling their parents things they never knew about teeth.

Education of Teachers Needed.

I also firmly believe that our school teachers, especially in the primary grades are not properly equipped and taught the absolute necessity of the care of the teeth. In our schools we have only one teacher who positively knew whether the sixth-year molar was a permanent tooth or a deciduous tooth. Many a time I have had a pointed argument with parents to convince them that the first permanent molar is not a "baby tooth."

I think it is our own fault if we do not get among the children in the first two grades and give them lectures and demonstrations showing the necessity for the care of the deciduous teeth.

Dr. Hurd, Hoquin, Wash.

I just want to say another word in regard to this getting the interest aroused, and about the mother not knowing that the sixth-year molar is a permanent tooth.

They come to you wanting the tooth extracted; telling you that is is a temporary tooth; that the child has been suffering for some time and they want it extracted. If you tell the mother it is a permanent tooth and succeed in convincing her that it is, she will often turn and say, "Well, why didn't somebody tell me. I would have had it taken care of long ago."

The Chairman.

As Mr. Brown is not present, there will be no closing remarks. The next paper is one by Dr. Homer C. Brown.

Dr. Homer C. Brown, of Columbus, Ohio, read a paper entitled, "The Combined Agencies in Ohio Co-Operating in a General Oral Hygiene Educational Campaign."*

The Chairman.

As Dr. Weston A. Price is absent, Dr. Arthur W. Chance, of Portland, Oregon, will open the discussion on this paper.

Discussion of Dr. Homer C Brown's Paper.

Dr. Arthur W. Chance.

We all recognize the importance of publicity in this work and in the desire that we have to promulgate the benefits of mouth hygiene. Ohio is the home of the Mouth Hygiene Association. A great deal of the material available for dental use originated in Ohio.

A small clinic which was established in the City of Portland some time ago has led a very precarious up-and-down existence, but we

*See Vol. I. Page 250.

hope to be able to keep it going. A Jewish organization has recently established a dental clinic upon its own account, and we hope to keep that going, and eventually to combine that with the County Dental Clinic under Government supervision.

Unfortunately, we are so situated that very little can be done in the schools. The law of the State prevents the school authorities from doing work of that sort, their work being by law confined strictly to that of an educational nature.

So, we have had considerable difficulty, but at the same time, we hope to keep on, and we look to the States of Massachusetts and New York, and especially to Ohio, for help in this direction. I cannot say quite enough in praise, and I think we all realize the benefit that the publicity in Ohio has brought throughout the whole country.

Dr. W. W. Belcher, Rochester, N. Y.

Dr. Brown has spoken of the criticism received by the work in Ohio. We have had much of it. In our work in Rochester, in the beginning, ten years ago, there was much opposition. I was Chairman of the local work for five years and did not dare to quit, there was so much knocking. After a while we got the people interested, and there was twenty-five hundred dollars in the treasury when I left. It was very difficult, after having the Chairmanship of that work, to go back to my ordinary duties contentedly.

Mention has been made of the Eastman Dispensary. Mr. Eastman is very particular that this should be known as the Rochester Dispensary. He does not want his name connected with it. That is, I think, on account of his extreme modesty. There is one thing that I think is interesting in this work, and that is that these donations (from Mr. Forsyth and Mr. Eastman) should have come in both instances from bachelors, men without children of their own. I do not know how to explain it. I think that among the fine things of this oral hygiene movement is the fact that dentists all over the United States have taxed themselves to promote it. In very few cases have the members of the medical profession done this. We have donated our own money many times to this propaganda. I think it is very much to the credit of the dental profession.

The work in Ohio of the training school, giving instruction to teachers in oral hygiene is very valuable. I hope when this course is completed, that we may have the benefit of the lectures.

Dr. Minnie S. Proctor, Torrance, Cal.

I wish to congratulate Ohio. No one can better appreciate that work than someone who is doing pioneer work, such as I am doing here. I was particularly impressed with the idea of educating the teachers. They need it so badly.

I will tell you of an instance that happened last year in our clinic in Los Angeles. Some of the children came to me for work and their mouths showed that they had been given something very injurious to the gums. There were numbers of cases of gingivitis, and they came from one particular school. Upon inquiry, they told me that the principal had recommended wood ashes for cleansing purposes. I hardly believed it, but it was true, for I took the trouble to inquire. The teacher had prescribed wood ashes, and the ashes were obtained in the back yard. That teacher deserved credit because she tried to do something. She did not know any better, she tried to do something, but did harm. That is why we should teach the teachers.

Dr. Robert Burns, Jr., San Francisco.

I am not a newspaper man. I am a practicing dentist in the city here, and have the honor of being the Chairman of the Board of Censors of our local Dental Society. That may be the reason why *The Examiner* asked me to write a daily article on dentistry that the layman could comprehend. I hesitated a long time over that, and spoke with Dr. Millberry, the Dean of our Dental College here, and he advised me to do it, feeling that possibly a certain amount of good could be accomplished.

There is no community that will rise above the average intelligence of its public. When we get right down to the basic fact, the proletariat governs. They are the biggest force, the most powerful force in any direction, if they are properly organized, and properly directed, awakened and led. There must be leaders, and the governing leaders, with that force, can accomplish wonders. What dentistry needs is publicity. The people must be awakened to the fact that in their mouths lies one of the greatest dangers. The medical profession is beginning to realize that Day by day, they are looking more and more into the mouths of patients and are consulting with dentists. We are not now looked at so much as tooth carpenters. We want to make the public realize that we are scientific men. You cannot do that by coming here alone and reading very technical papers and debating technical matters that pass entirely over the heads of the public. We must educate the people in our offices as well as through the course of lectures and series of instructions that Dr. Brown has so ably prepared. Then we will get a bigger response. What we need is what the medical colleges so long have had, large donations from wealthly people for specific purposes. General instruction in the schools is one of the most potent factors for the welfare, not only of the pupil but of the public. Little Willie, in Dr. Proctor's town, will now say, "Don't use ashes on your teeth." He will know better next time, and little Willie's father and mother will also know better; and Willie's

children will know more than he did. It will not be accomplished in a day, but through years. And now is the golden opportunity, for the awakening is coming.

Dr. F. L. Morey, U. S. N., Mare Island.

I want to congratulate Dr. Brown on having raised the dental profession in Ohio and the United States to the height it now has reached. It has been recognized more in that State, the home State, that since he has taken a hand he is leading the profession to higher achievement and better recognition.

I realize more and more, every day since I have been in the Service, the need of education. The men enlisted in the Service you would think would know enough to take better care of their teeth, but they do not. Many of them do not use a tooth-brush. That is one thing I try to do in my work, to teach the men the care of the mouth. We cannot do all the work needed in the Navy. We do amalgam fillings, cement fillings, etc., and by prophylactic training we save a vast number of teeth and prevent much sickness, and keep many men out of the hospitals. Very many go to hospitals, especially with rheumatism. One man that I have in mind was sick in bed, helpless, unable to leave the bed. The medical officers did all they could for him. Finally, as a last resort, because he had rather an unsanitary mouth, they sent for a dentist to go to the hospital. Radiographs were made, and under two of the lower molars abscesses were found. The upper molar gums were receded. The only thing to do in that case was to remove the teeth. In five weeks, without any further medication, that man was able to walk. That is a very remarkable case. There are others not so remarkable.

Dr. J. R. Beecham, Dallas, Texas.

I have not heard a word from Texas. We are a new State yet comparatively, and we have paid more attention to cattle grazing and the raising of cotton than we have to the care of the teeth, but I am glad to say that we are awakening along that line. I have been pleased to hear these discussions, especially to hear Dr. Brown, from Ohio.

One thing particularly that appealed to me was the education of the teachers. I think he said that this course would gradually work up to its full effect in 1921. Now a great many teachers have their annual and county institutes, where the dentist could be given an opportunity for a lecture, and in that way they could at least get them so taught that they would not use ashes on the teeth.

Another point I would like to make, and that is in regard to the doctors. Somebody spoke about getting knowledge to the parents. The doctor, being the first to come in contact with the patients while at the

sick bed in the home before the dentist ever sees them, could, if properly educated, call attention to the fact of the importance of taking care of the teeth. Then they would never, as the gentleman over there stated, allow a man to lie in bed five months without even looking into the mouth for the source from which the trouble originated. It is not that they do not want to know, but the fact is, they do not know, and nobody teaches them. Who is responsible, if it is not the teacher who knows, and does not teach the other fellow? Is not the responsibility on the dentist that does not go out and teach? If there were a Chair of Oral Hygiene in every medical school, that would be one great step in the right direction.

I have had a little experience along the line of lecturing. Once I was lecturing in regard to temporary teeth. I asked, "How many of you think children's teeth ought to be filled?" One man raised his hand and said; "If the dentist wants to fill his pockets, he might fill some of the teeth."

In regard to oral hygiene in Dallas. We have a little city of about a hundred and thirty thousand. There are two one-chair dental clinics. There is no appropriation for this. It is all voluntary service. But we are making progress because we have one man, a member of the Board of Health, Dr. Jones, a leading man in our community, and we hope soon to have a clinic at our new city hall, with a paid dentist on regular time.

The Chairman was obliged to leave at this point, and turned the meeting over to the Vice-Chairman, Dr. W. W. Belcher, of Rochester, New York, who occupied the Chair for the rest of the session.

Dr. J. F. Teufert, Yuma, Arizona.

A great deal can be done by means of stereopticon lectures. I have prepared slides to give lectures in the various public schools, and I was surprised to find the number of dentists who were willing to give the lectures. We expect to keep up this movement next year.

Dr. Garret Newkirk. Pasadena, Cal.

If everyone who has any influence whatever with the management of medical schools would use that influence for bringing about what has been accomplished in Ohio, the establishment of a chair of dental instruction in the medical college for the graduate medical students, it would be a very good thing. Seniors should not be allowed to leave the medical school without instruction along this line. As it is now, not one in a hundred possesses any knowledge, as every practicing physician ought to be, with reference to the care and importance of the teeth. It is not given. No provision is made for giving it to them. It is a shame. It is a disgrace to the medical profession that such chairs are not in

existence in every school. Bring your influence to bear as far as possible in that direction.

Dr. Gillespie, Los Angeles, Cal.

I am pleased to hear Dr. Newkirk say that, because I think it is a fact. The physician does not look into the mouth. He gives medicine and does not know the cause of the trouble. I had a gentleman come to my office about a month ago with his face full of eruptions. He was scratching and suffering agonies. He had been doctoring for several months for his trouble. The doctor had told him he had a nervous breakdown and must take two months' vacation. He went away for a week. He was manager in a large department store and that was all the time he could spare. He got hold of some literature on dentistry, and on pyorrhea especially. He said, "Doctor, I have been reading this, and I guess that is what ails me." I looked in his mouth. There were four teeth on the upper jaw and thirteen on the lower. Five of the lower had abscesses, and there was pyorrhea on all the others. No teeth occluded. The four upper teeth were anterior and did not occlude with anything, and the lower teeth struck against the upper gum. There was absolutely no means of mastication, and from the pyorrhea and abscesses, with every mouthful of food he swallowed pus. He was simply poisoning his whole system. I showed him what was happening. I said to him, "If you had a boil on your hand, would you put it in your mouth and swallow that pus?" He saw the case as I saw it. I extracted the teeth that needed extraction and treated the teeth and gums. In a few days this irritation had disappeared. I also called up his physician and he came up to the office, and I pointed out these facts to him, and told him to give the patient something to cleanse the system, a good cathartic, and that I would take care of the mouth. In a week's time the man felt a hundred per cent. better. His face cleared up, and he was working at his business. I made him a plate so that he could masticate his food. We cannot cure this man in a week or a month, but we have found the source of the trouble. No amount of medicine ever could have cleared up the trouble in years, without giving attention to the mouth.

So the physicians should be taught to look into the mouth and diagnose the conditions.

Dr. Homer C. Brown, Columbus, Ohio.

Some reference has been made by several regarding the securing of these lectures that we are proposing to put into the training school course in Ohio. We expect to have this lecture course started at a very early date, some time during the training school term of the coming year. The course now is not a full time

course. There was a little misunderstanding with reference to my statement. In 1921 a full year's course in these training schools will be required. That is worked up to the final maximum. But between now and then, they begin with a smaller requirement, or lesser requirement; so many months this year, so many months next year; so many months the year after that; and so on. You cannot jump from the present status of any system into the ideal within a very brief period of time. These lectures, however, are to be established during this coming course this year. I brought the lectures with me and reviewed them on my way to the Coast, and mailed them to the Superintendent of Public Instruction from Albuquerque, New Mexico. So they will be published at a very early date, and those of you who will be interested in securing a copy of this lecture course may do so by addressing Honorable Frank W. Miller, Superintendent of Public Instruction, Columbus, Ohio. Ask for the Course of Standard Lectures on Hygiene.

Mr. Miller is co-operating to the very fullest extent, and I want now to make a part of the record that I think the statement of Superintendent Miller that I used in my paper, when I quoted him as saying that he would give one thousand dollars if some form of instruction, or course of instruction, such as we have under consideration, had been in effect when he was a pupil in school, is of great value. I think such a statement coming from such a man not connected with any of the healing professions is a very important one to present in any location in order to show the importance of this work.

I am in thorough accord with the aggressiveness of Dr. Burns. He has a very clear and concise idea of the necessity of reaching the public before you are able to accomplish anything wherein the finances of the community or the larger interests of the community are involved. Dignified publicity is due to this Congress in your own city here. Dignified publicity is due to the activities of Dr. Chance. Dignified publicity is due to the activities of Dr. Proctor and of these other dentists. Dignified publicity should follow the appointment of Dr. Jones as member of the Dallas Board of Health. He was kind enough to write me for such information and suggestions as I could give him in the details of the work.

Dr. Chance raised a question as to my being a member of the Ohio State Board of Health and the first member of the dental profession so appointed. That is quite true, but it was not of my seeking, and, ladies and gentlemen, in accepting that appointment, which came without any seeking on my part, and in accepting the lectureship in the Ohio State University Medical Department, I did both of these for what good I could do.

I want to emphasize what Dr. Newkirk said. I believe that if you can go back home and encourage in some way the establishing of an Oral Hygiene Chair in your various medical schools, that you will have introduced a very strong factor in raising the standards of your profession and equipping the medical men for further usefulness.

I think further, that the plan that we have outlined in Ohio for the training schools or for the better equipping of the teachers is going to be one of the most important factors in instructing the future generations along the lines which we have under consideration to-day.

Our friend from Ohio referred to a case to which others have referred in the discussion. I do not wish to be critical, but I was very much interested in this case. He referred to an unsanitary mouth. I do not think an unsanitary mouth exists. I do not like the term "unsanitary," to start with. "Insanitary" conditions exist in inanimate objects. This room, this building, the streets, the sewers, may be insanitary. "Unhygienic" conditions exist in animate objects. "An unhygienic mouth," in my opinion, would be the proper term to use. I hesitate even to mention my preference for these terms, but I think it is our duty to use the most appropriate terms.

The Chairman. We have another paper to be presented, but owing to the lateness of the hour, I will ask the Secretary to read it by title.

The Secretary. This is a paper entitled "Municipal Dental Clinics,"* by Matthew Carney, D.M.D., Supervising Dentist, Department of Health, New York City. Visiting Dental Surgeon, Bellevue Hospital, New York City.

The Chairman. There will be another meeting of this Section to-morrow morning at ten o'clock, when three very excellent papers will be presented. If there is nothing more to come before this Section, we will adjourn.

Upon motion, duly seconded, the meeting adjourned.

September Fourth.

The meeting was called to order at 10:00 A. M., the Vice-Chairman, Dr. W. W. Belcher presiding, and Dr. Robert W. Hall acting as Secretary.

The Chairman. The first paper this morning will be that of Dr. Horace Howe, of Boston, Mass., entitled, "The Importance of Mouth Hygiene During Infancy and

* See Vol. I. Page 258.

Early Childhood."* As Dr. Howe is not present, the Secretary will read the paper.

The Secretary read the paper of Dr. Horace Howe.

The Chairman. This is a short and very interesting paper, and I think it is worthy of good discussion. The subject is now open.

Discussion of Dr. Howe's Paper.

Dr. Whitney, Honolulu, T. H. There is one point that I would like to emphasize. I, like every other practitioner, have had much work from those who operate in candy shops, and I can say that I have never seen a person who came from such a place with passable teeth, and sometimes it is almost impossible to care for them. I have mentioned that to other practitioners, and they have noticed the same thing so that when the essayist so wisely said that candy has more to do with the loss of teeth than any other one thing, I think it is true. If I had a child, I would rather he should never see a tooth-brush and keep him from candy, than use all the tooth-brushes you can furnish him and let him have candy *ad libitum.*

Dr. Leander Van Orden, San Francisco, Cal. I do not know that I could quite accept Dr. Whitney's conclusions in regard to the tooth-brush and candy. It may be true, perhaps, of those who work in candy stores. I have heard of those cases a good many years ago. Such cases show marked defects in the labial and buccal surfaces. But I should think the tooth-brush would go some distance at least toward ameliorating that condition by the polishing of the enamel and the removal of the débris which will accumulate in the tiny cavities that are the first beginnings of decay. I do not believe I can quite accept the Doctor's statement that one can do without the tooth-brush. I have not yet been able to see the substitute for the tooth-brush.

Dr. Whitney, Honolulu, T. H. I do not mean that I can do without one, but if I had a clean tooth, I would be willing to lose the tooth-brush rather than to acquire the candy habit.

I had a very interesting experience many years ago. I had had a young girl in my care for some time who had one of the most perfect sets of teeth I ever saw. They were absolutely perfect. Her parents were wise enough to have her teeth examined every six months. Not six months from the time I saw her last with perfect teeth, she came into my office one day, saying, "My teeth feel very uncomfortable. What

* See Vol. I. Page 288.

is the trouble?" I examined her teeth, and saw, to my surpise, that between every approximal surface, upper and lower, there was decay. I said to her, "What have you been doing? You must have been eating candy to the seventieth degree." She said, "No, I have not eaten very much candy, but I have been making candy to carry to my school, and I have had to taste it every time I made it. I have been making it for the last four or five months." I said, "There is your trouble." I filled those teeth, and those fillings are there to this day, and she has had little or no trouble with them to this time. If candy did not do that, I do not know what did.

Dr. L. G. Mitchell, Oklahoma City.

While it has been a number of years since I was a candy-eating child, I can well remember the pleasure of that indulgence, and I love children to such a degree that I would not like to take from them any pleasure; at any rate, not anything that affords them so much joy as eating candy. I would rather try to regulate that, and to offset the evil influence that accrues from that act. I believe we agree that it is the acid from the sweet that destroys the tooth structure. We know that milk of magnesia is a splendid antidote for that condition—that, and the proper use of the tooth-brush. It seems to me this goes back to the subject of education. Educate children as to what is a reasonable indulgence, and educate them to the use of the tooth-brush so as to prevent any excess from damaging the teeth.

I want to compliment the essayist on that part of his paper wherein he uses statistics, not simply stating his opinion as to what occurs from this or that, but rather giving us statistics that we can rely upon. That furnishes us with evidence of the result of certain conditions. That to me is of more importance than the opinions of anyone.

Dr. Evangeline Jordan, Los Angeles, Cal.

I work entirely with children, and I have found the results very similar where children do not eat candy, but do eat largely foods made of white flour; living on starch foods. All condensed milk babies have this same condition in their mouths. I think it is largely systemic, because many of the children brush their teeth thoroughly. We often have chronic indigestion.

I, myself, am not such a believer in the tooth-brush. For instance, our forefathers did not have such very bad teeth. They also did not have tooth-brushes, but likewise they did not have fine white flour. I would prefer to substitute a hard food diet and do away with the tooth-brush, rather than to depend upon the tooth-brush with the present diet.

Dr. Leonora Ginno, Berkeley, Cal.

I think stress should be laid upon teaching the mothers and young children the use of hard, dark bread, such as they use in the old countries. Those people rarely have the soft white bread we use here. We notice, among the people who come here from the old countries, that the mothers have excellent sets of teeth, with practically no care, but the children who are raised here in our environment and who adopt our American food, soon fall under the same condition as our American born children. I think they should be taught to use hard foods.

Dr. Leander Van Orden, San Francisco, Cal.

In regard to sugar, I wish to say that in our home both my wife and I believed that a certain amount of sugar was desirable; that there was a physiological demand for it. We were in the habit of seeing that the children did not crave candy by giving them a certain quantity of sugar in their food. They were never given candy between meals. I do not mean to say that they have had no caries. All of my five children had caries in their teeth, but I did not need to extract any teeth. With the exception of one tooth in five children, I was able to conserve them all by filling. I had not learned much about polishing then, or I think possibly I might have done better. I think polishing alone will take care of deciduous teeth. Clean them and then polish them.

Dr. Evangeline Jordan, Los Angeles, Cal.

I have found that children whose teeth were very badly broken down had always eaten starch. I do believe that is the foundation of the whole trouble. I think any reasonable diet to-day has sufficient sugar in it as a rule. I have a small boy, whose father is a Major in the Army, whose food consisted entirely of a sort of pap, and the enamel has almost disappeared from his teeth. In one family of very hardy stock, the children eat mush and milk, and you can scrape the enamel off. The parents have good teeth, and the children had splendid teeth in the beginning. When we polish the surfaces for a short time, they harden again.

I could tell you of thousands and thousands of such cases, because I have been trying to find out why children's teeth are decaying in the wholesale manner in which they are, and I believe that is the cause. Children from candy stores and small groceries have such mouths. As soon as you get them to change the diet, their teeth harden. It is wholly a question of diet, I am sure. I had a young girl in whose mouth every tooth had caries. The bicuspids were broken down at the age of twelve years. She had a habit of eating bread and molasses every night before she went to bed. You could not do anything with a mouth like that.

The Chairman. There has been a very interesting discussion. This will close the subject, and we will go to the next paper, which Dr. Van Orden, of San Francisco, will read, entitled, "Making the Exposed Tooth Surfaces Slippery—An Address to General Practitioners in Particular."*

Dr. Leander Van Orden. I will read the abstract that I made, as well as the paper, and will then make some demonstrations in the use of the tooth-brush, etc.

(After reading the paper.) In instructing patients in regard to the use of the tooth-brush, it has been my custom to use the forefinger as a means of indicating. If I am talking about the lingual surface, I place my finger, moistened with water, upon it and try to give them the impression of the surface they are to work on. If I find a white surface, the beginning of decay, I get a mouth mirror and show it to them, to make some impression, and I also give a treatment to that surface.

The rubber-finger-brush would be a great addition no doubt. I know of a younger practitioner who is placing the larger part of his faith upon the rubber-finger-brush as being better than any other. I have not found it so. I have not yet got to that stage, but am perfectly willing to change my mind. (The Doctor then exhibited and explained the uses of various brushes.)

The Chairman. I will call upon Dr. Whitney, of Honolulu, to open the discussion of this paper.

Discussion of Dr. Van Orden's Paper.

Dr. Whitney, Honolulu, T. H. In regard to this question, I am so fully in accord with all that my friend has said, that I cannot add anything. So, if you will excuse me, Mr. Chairman, I would like to take a little time and relate something about my early life in what was called at that time the "Sandwich Islands."

Conditions Existing Before Civilization. Forty-six years ago to-day I landed in what was called the Sandwich Islands. At that time, the Hawaiians were the principal people there. To-day you scarcely see a Hawaiian. You see Japanese, Chinese and Caucasians. At that time there had been, of course, no one interested in teeth and the examination of teeth. The method of burying was often in the sand. There had been great battlefields there, and the ground on the seashore at one place, for three miles, was covered with whitened skeletons of the slain and buried. I had an opportunity of exam-

* See Vol. I. Page 275.

ining a great number of crania. Thousands of them were exposed, so that I had an opportunity of seeing what was occurring in this early time before any civilization reached that land. This subject I brought out in a paper that I was privileged to read before the Congress at Chicago. In those many crania which I was privileged to examine, I found all forms of decay; all forms of disease which are common to-day; but I found comparatively very little roughness of the teeth, and very little pyorrhea compared with what would be found to-day.

Then, some time later, I went with a friend to another island and went into a great cave where modern persons were not allowed to go, and there I examined a great many crania. I found the same conditions there, in that cave. There were hundreds of crania. The cave had not been entered for seventy-five years, so that this represented conditions as they existed long before civilization.

"Now, why," I said, "does this condition differ from that of to-day?" The Hawaiian has to-day much worse teeth than the European. Why has this change come about? In those early days, the principal food was what we call "*poi*," which was made from the root of "*taro*." The taro-root was mashed up to a very fine consistency and then allowed to ferment. When the Hawaiian ate that, it was quite a decided acid. We Caucasians like acids as a relish, but we would not like it as our main food. That was their principal food. They had no sweet at all, save the sugar cane, which they had to chew and force it between the teeth, the very fact of doing which would cleanse the teeth. Then they were in the habit of eating a great deal of raw fish, and this was exceedingly cleansing. I was invited to a banquet once, and sat next to an immense woman, weighing over four hundred pounds; the largest woman I ever saw. There was brought in a long fish. She took it by the head and tail, opened her mouth, and bit out a clean mouthful of raw fish, bones and all. You may know that such a working of the teeth as that must have some tendency to preserve the teeth.

Conditions Existing at Present.

This was the condition that existed until the American and European came with their cracker and soft bread, and then there commenced immediate deterioration. To-day, as I said, the Hawaiian is worse off than the American, because he takes less care of his teeth, and his other habits are not so favorable. But during those early years, when they had no drugs, but had this acid food, and this cleansing food of sugar cane and raw fish, they had the most perfect teeth probably of any nation that ever existed. They had been separated from other peoples for fifteen hundred years. There was no intermixture whatever. There

was little irregularity and beautiful teeth in form and perfection of enamel. There was some irregularity. We would sometimes find the third molar not in place; and there were other slight irregularities.

So, I think if we can control the diet of our children and of our people, we shall do a great deal towards creating what I have seen in the Hawaiian Islands.

I was greatly interested in Dr. Van Orden's paper, which was of great value to me, and I thank him, and thank you all for the privilege of speaking.

Dr. Van Orden.

I think we would all appreciate it very much if Dr. Millberry felt inclined to make some comments on my paper, which was, unfortunately, very long. Dr. Millberry, being very familiar with the work of Dr. Pickerel and interested in the very careful working out scientifically of these cases, might possibly be willing to say something.

Dr. Guy S. Millberry, San Francisco, Cal.

The Oral Hygiene movement has always interested me since its inception, and I have enjoyed Dr. Van Orden's paper very much this morning, although I do not concur in everything he has presented. I judge that it is our privilege to differ with the essayist, as well as to agree with him.

He spoke of carbon deposits found in men's mouths as the result of tobacco stains. I think, ordinarily, those deposits are not directly responsible for gingival irritation; in fact, men who smoke are often more free from pyorrhea and gingival troubles than men who do not smoke. We have no evidence to support that contention, except experimental work done by a Swedish chemist by the name of Husk. He found that under normal conditions, both smoking and chewing tobacco had marked bactericidal influence. So there may be something in the advocacy of smoking.

In regard to the rubber-finger-brush advocated by some, and in part endorsed by Dr. Van Orden, I cannot agree with its value at all, except as a massage treatment. I witnessed a demonstration by the man, who professes to be a medical man, who is the president of the Indexo Tooth-Brush Company (and also the demonstrator, as well as the president, so that the company is probably all inclusive), who demonstrated that Indexo Tooth-Brush at the Exposition until such time as pressure was brought to bear to force him out of the Educational Palace in order that the building might not bear the stigma of being an advertising feature in the Exposition. He is doing some work here now, and I heard his statement when he said it would "cure pyorrhea," "would cleanse the teeth thoroughly,"

"possessed all the virtues of the brush and none of the disadvantages of the brush." I think such statements are so erratic that we ought to use all our power to condemn such procedures and to educate our patients. Beyond the value of massage, I do not believe it is the least bit of use.

During the American Medical Association meeting here, Drs. Bass, and Johns, of Tulane University, discussed the value of the tooth-brush, and showed microscopical views of the ends of the bristles. They claimed that these sharp inclined planes would puncture the gums, and that there was a possible source of infection; and that we were distributing infecton that could be prevented by the use of other methods. But they offered no solution of the cleaning problem. I do not believe that the tooth-brush, properly used, is any more dangerous than the hair-brush, or the bath-brush, and I doubt whether any of us would give up these very valuable toilet articles.

The question of the use of the tooth-brush, as Dr. Van Orden demonstrated it, is most important, and I feel that in our teaching to our patients, we sometimes are not quite clear. I believe we should describe the rotary motion of the brush, in contradistinction to the up and down or circular motion. In the circular motion we are crowding masses of food into the inter-spaces between the teeth. In the rotary movement, in which the bristles revolve upon the handle, as though the handle was the axis, we get an effect by which the bristles are laid sidewise and remove all the particles of débris.

Extreme Polishing Deprecated.

I am not quite in sympathy with the extreme method of polishing, because of some of the results that have followed the enthusiasm of men who have taken certain courses in polishing the roots of teeth and have done so until they are so smooth and polished that the teeth have become so sensitive as to need to be devitalized. Often I have seen teeth treated by this system, necessarily devitalized in order to give the patient any comfort. In one case, two molars, two bicuspids and the cuspids were so irritated that the pulps had to be removed so that the patient might be comfortable, and it was attributed entirely to the extreme thoroughness of this treatment. It seems to me to be a great danger to the tooth substance itself, and particularly to the pulp, if we resort to such extreme measures. The man who follows such a course as Dr. Van Orden does, must use exceptionally good judgment in the use of these highly abrasive grits, or they may do a great deal of damage.

Transmitted Contamination.

Dr. Van Orden also mentioned the use of the tooth-brush, dipping it into a common box of powder, denying the contaminating injury that might occur to the various members of the family using such

powder. We are constantly being contaminated by each other in our families through the very common habit of kissing. If it is a question of infecting one person by another, I do not think we need have much fear of contamination; but if we are to fear it, then the method is undoubtedly incorrect. Take an agar plate that forms the medium which is used for development of bacteria; remove it from the sterilizing chamber and open the cover; pass it through the air once very quickly, and immediately replace the cover and put it in the incubator; we will find anywhere from ten to fifteen forms of micro-organisms developing very rapidly. Any common use of any box containing tooth powder is undoubtedly a source of infection.

Dr. L. G. Mitchell, Oklahoma City, Oka.

While there are a few little points that I, like the preceding speaker, do not wholly agree with, I want to confine my comments to a matter which I think is of great importance, and that is the cleaning of the teeth. I treat pyorrhea a great deal, and of course, as you all know, there is a great deal of recession. The movements that the essayist gave us during his demonstration do not reach those surfaces with the ordinary brush, but if we can instruct our patients to reach those surfaces with an ordinarily good brush that we prescribe, we are doing better than to have them loaded up with a number of brushes which is difficult for us to always get them to buy and use. Where there is a great deal of recession, the rotating of the brush does not suffice. No movement that we can give the brush in rotating or back and forth will reach that. But by slipping the brush straight through, we can loosen the deposits and then we can get in with the brush very nicely and can clean it out.

I believe in massage with the finger. I do not like this little rubber article for that either. One purpose of the massage is to bring the venous blood down to the surface and to encourage greater circulation of the venous blood. Some authorities say it is better to push up from the gum, because that draws more blood into the surface. I think both movements are good, to draw an excess of blood to the surface, the real purpose of the massage; and also to crowd out any foreign matter that may be under the gingiva.

Instruction to Patients.

Now, to emphasize the matter of cleanliness with patients: We know it is folly to attempt the cure of pyorrhea unless we get the patient to keep every surface of every tooth absolutely clean. I have long since gotten away from this quiet, gentle, polite manner of saying, "You should keep your teeth clean." I now tell them that it is not a question of *should* but of *must*. After a patient presents himself for three or four

sittings, and I still find a deposit accumulated from several meals, I show it to the patient and instruct him how to clean the teeth. I cleanse the teeth and let them see the operation. It is a question of *must,* and if he shows indifference and is not willing to be guided absolutely by my instructions, then I lay my instruments down, lower the chair, and say; "I am through, you can go elsewhere for your work." When I find that the spirit of co-operation is not what I want, then I am through with that patient. Let me illustrate. I believe illustrations are good, because it clinches the point. A year and a half ago I heard Dr. Ottolengui tell a little story about one of his patients, a wealthy woman, who was so impressed with the value of properly carved cast inlays that she preached it to her friends. One woman told her that she had her teeth filled with inlays. The lady then examined her friend's mouth and said; "Yes, you have inlays, but they are not *restorations,*" Every time I make an inlay, that story helps me.

There was one lady in my office, prominent socially, a woman of strong mind, but who had never learned to take care of her teeth. She had pyorrhea, and after several sittings, at which I taught her how to use the brush, she said: "Doctor, I do the best I know how." She came again with her teeth in the same condition. I showed this to her. She said, "I know I am just as careful as many of these business men that you have." I replied, "Assuming that to be true, what has that to do with you?" The next time you come, you must bring your brush so that I can show you how to cleanse them properly." She came without it. I said, "Did you forget it?" She said, "No." "Then I am through." And I lowered the chair. When she left the chair, with tears in her eyes, she said, "Don't I pay you to do this work?" I said to her; "Madam, you have not enough to pay me to do this if you are not willing to co-operate with me." She went away and two weeks later, she meekly telephoned and made an appointment. The worst of it for her was, as she told me later, her husband had taken my side of the contention. (Laughter.)

So, I have reached that place in my practice, where I insist upon absolute cleanliness, and my patients must do as I tell them. Don't compromise. Some of my friends criticize me because in talking to school children I hold up to them the picture of disease as the result of certain conditions. I know that is not scientific from a psychological point of view, and it is too bad that we have to do it, but we cannot get results otherwise. If you are going to get the duck's back wet, you must raise up the feathers and dash in the water.

So we should insist upon this point. Be the master in your own

office. Be sure that your diagnosis is correct, and then be the master. If patients are not willing to abide by your instructions and do as you say, then tell them to go elsewhere, or wait until they know you are worthy of the confidence you should have.

Dr. Guy S. Millberry. I should like to corroborate my opinion in regard to the Indexo Tooth-Brush. The gentleman who is advocating the use of the tooth-brush confessed to me, and that is the reason I wish to present the information, that he was a doctor of medicine, that he attended five medical schools in acquiring his degree, and practiced medicine for five years, and therefore knew all about dentistry and for that reason was capable.

Dr. Whitney. In my course of medicine, there was one-half hour given to the special subject of the mouth, in the two and a half years that I was studying medicine in Columbus, Ohio. I think it has been changed since that time, but that was the condition then. Still, when I went to Honolulu, the physicians thought they knew it all. In order to show them that I did know something, I went back to the States and took the course in medicine. They had nothing to say then. I was all right.

Dr. Celia Rich, Nashville, Tenn. Just one little point I would like to make, and that is in answer to what Dr. Millberry said, rather than the essayist. It was in regard to the effect of tobacco. It has been demonstrated that although the effect may be bactericidal, there is an absolute deposit of nicotin in the soft tissues by the use of tobacco, and that, of course, is just as injurious, and probably more so than the universal presence of bacteria.

Dr. Leander Van Orden. I have taken so much of your time, I have very little to say in closing. I very much appreciate the criticisms. I am thankful for the commendation, of course, but I especially appreciate the criticisms.

I would like to say that my idea in regard to the number of brushes was to have them dry each time, not to elaborate on the number, but rather to have them dry when they are used. My experience is that the dry brush will remove more particles than the brush that has been wet for hours.

In regard to Dr. Mitchell's question, pyorrhea cases do not find me very readily. I try to keep them out as far as the patient is concerned who comes to me originally.

In regard to smoking, I did not mean to say anything about the smoking, except as it encouraged retention of food débris.

In regard to the common use of the box of powder, I do not advocate that either. It seems to me that if the brush is absolutely dry, nothing can drop off of it, and the powder absolutely in contact with it would stay, and therefore it seemed rather doubtful that any infection could take place. However, that is a minor point. The Doctor said he was not very much afraid of the infection anyway.

The Chairman. The next paper on the program is by Dr. Dam, of Lima, Peru, which I will ask the Secretary to read by title

The Secretary. This paper is entitled, "Hygiene of the Bucco-Dental Cavity as an Important Auxiliary for the Prophylaxis of Incipient Bucco-Pulmonary Tuberculosis,"* by Ernesto A. Dam, Lima, Peru.

The Chairman. This completes the program of this Section, and I think we should be very much gratified with the attention that has been given to our department. Our discussion this morning has been very interesting, and the meetings have been remarkable in the matter of interest, if not in number.

Upon motion, duly seconded, the meeting adjourned.

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*See Vol. I. Page 286.

Discussion of Papers Presented in Section V.

Materia Medica and Therapeutics

Section Five.
Materia Medica and Therapeutics.

Chairman: J. P. Buckley, Chicago, Ill.
Vice-Chairman: Carl D. Lucas, Indianapolis, Ind.
Secretary: Frank C. Pearn, Portland, Ore.

September Second.

The first meeting of Section V was called to order at 9:30 A. M., by the Chairman, Dr. J. P. Buckley. Dr. Frank C. Pearn, of Portland, Oregon, acted as Secretary.

The Chariman asked Dr. J. M. Whitney, of Honolulu, to take the Chair during the reading of the Chairman's address.

Dr. Whitney took the Chair, and Dr. Buckley read his address.*

Dr. Buckley then returned to the Chair, and announced that in the absence of Dr. E. T. Loeffler, of Ann Arbor, Mich., his paper, entitled, "Pain, Its Advantages and Disadvantages—Its Value as a Diagnostic Symptom and the Importance of Its Alleviation and Prevention,"** would be read by the Secretary.

Dr. Frank C. Pearn then read Dr. Loeffler's paper.

The Chairman. In order to get anywhere in life one must have ideals. The ideal of this Congress was to select the best essayists to write the papers. In this I think we have been successful. Also, realizing that many times the discussion was as interesting, if not more so, than the paper itself, we have tried to get in every instance the best men to discuss the various papers. The man who will open the discussion on this paper is one who will need no introduction, and I am not afraid but that he will be heard by everyone, but in order that everyone may see him, I will ask him to take the stand. It is with pleasure that I introduce to you Dr. J. V. Conzett, of Dubuque, Iowa.

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* See Vol. I. Page 307.
**See Vol. I. Page 384.

Discussion of Dr. Loeffler's Paper.

Dr. J. U. Conzett, Dubuque, Ia.

In beginning the discussion of this very valuable paper, I want first of all to compliment the author upon the very excellent presentation of a subject that has been very much neglected by the ordinary essayist, and to congratulate the profession upon having in their possession a treatise upon the subject that is a classic and one that may well be placed in our libraries for future study and reference.

Pain, as the essayist has said, is a most valuable diagnostic aid and is the cause of the patient's becoming cognizant of any aberration from health. In this respect pain is an advantage to the race, which is undoubtedly the reason for its existence. The fact that pain will persist long after the attention of the patient has been called to it and after remedial treatment has been instituted in many instances, is no reason why its office is not a beneficent one, but simply a reminder that we, as therapeuticians, have not yet arrived at the point of ability to properly apply the required remedy, and the persistence of pain is the cry of the organism for the proper relief, and the cry of offended cells and nerves will keep on going up until science finds and supplies the proper remedy.

The profession of dentistry is one that has in its care the most sensitive parts of the human body. Men and women who will endure suffering of the keenest kind without a murmur, will flinch and cry out in agony at any attempt to operate upon a sensitive tooth; and one that will endure the removal of a live inflamed pulp without the exhibition of the keenest distress is scarcely to be found. The dread of the dental chair is practically universal, and the attempt of the operator to minimize this dread by the discovery and application of some agent for the relief of pain is as old as the practice of our profession. Many remedies have come and gone, some with some degree of success, others with no value whatever, until the ordinary dentist was almost forced to think that there never would be a safe and sure method applicable to all cases. But our profession has accomplished wonders, and if the patient who suffered the tortures of a large gold filling ten years ago undergoes the placing of a gold inlay with the modern methods of operating, he invariably expresses the keenest delight at the advance of dental science along the line of the alleviation of pain.

Use of Anesthetics Limited.

We have several methods that will absolutely prevent pain to-day, and it is our duty and is our pleasure to use them. However, I want to say that I do not in any degree believe that the use of an anesthetic should become routine practice. There never was, and probably never will be an anesthetic that is entirely devoid of danger, and in the large

majority of cases the expert operator does not need an anesthetic to enable him to properly prepare a cavity in a live tooth.

In surgical cases and in most cases of extraction an anesthetic is undoubtedly almost universally necessary, but in the practice of operative dentistry, which is my specialty, I reiterate, it is not justifiable to use any anesthetic method as a routine of practice. In the first place, as I have just said, the majority of teeth can be excavated with scarcely any pain, and in the second place, if we always used an anesthetic we would mask conditions of pulp complications that would very frequently make for future trouble. If the tooth is sensitive and the preparation thereof causes the patient undue pain, then an analgesic of some sort should be used. What that may be must depend upon the skill and experience of the operator. To a man skilled in its use, the action of nitrous oxide and oxygen is perfection.

Buckley's Paste.

Others find in the various methods of using novocain the happy solution of all their difficulties, and still others find a most valuable aid in the new Buckley's Paste. I have been surprised to note the criticism of the latter which has recently sprung up in some quarters, and I can only reiterate that which I have said before, that I have used it in hundreds of cases and have had but one pulp die after its use, and that in the tooth of a patient that always has trouble whether I use anything or not, so I have never attributed that death to the use of the Buckley formula. I have used it now continuously for over a year and a half, having had the honor of working with Dr. Buckley in trying out his original formulæ, and up to date I have had but one result that could be laid to the bad action of the paste. The only difficulty I have with it is that patients having once had it used upon them will not allow me to operate without it, and I do not always want to take the time to use it.

Suggestion.

In conclusion, let me say a good word for my old and tried friend, "suggestion." The large majority of my operations are made under its influence, and the man who has schooled himself in the psychology of mental suggestion, who knows through the practice of it upon himself and upon his patients the power and beneficence of the same, will have less and less use for any drug or method of inducing analgesia, and his patients will be in better condition mentally and physically than they would have been had he used some of the many other methods. "Know thyself and the power contained in thine own will, and then it will profit thee nothing to go outside of thyself in search of that which will make all things thine own."

The Chairman.

Another gentleman who has spent years of his life along these lines has been asked to take part in the discussion of this paper, Dr. H. B. Tileston, of Louisville, Ky.

Dr. H. B. Tileston, Louisville, Ky.

Dr. Loeffler has presented a thoughtful and scientific paper and one that will constitute a very worthy part of the proceedings of this Congress. He has treated the subject in a broad and comprehensive way and in my discussion I shall endeavor to apply it more directly to the practice of dentistry.

Physical pain is the cry of a nerve in distress, and it may be, though in a vast majority of cases is not to be considered as a symptom of disease.

The law of self-preservation is based upon the imperative impulse to avoid things that hurt.

From infancy to old age, life is one bump and bruise after another, and wisdom is an accumulation of painful experiences.

Every time a child in its play receives a hurt it thinks a new thought, and with every agonizing experience a man learns something.

Thus it may be said that one of the advantages of pain is that it serves as a means of education and development of character.

The conception that we, as diagnosticians, must have of pain, however, is not that of a beneficent stimulant, but rather as an indication, more or less valuable, of some lesion, some departure from normal, either at the seat of the pain or in some part remote from it.

To be able to determine the origin and cause of pain requires much observation, study and experience.

As Dr. Loeffler says, it is pain that impels the sufferer, in many cases, to seek the aid and advice of his physician or dentist, and when the patient presents himself and has related his tale of woe, it is the duty of the practitioner to determine the cause, remove it if possible, and restore ease and happiness.

Pain Arising from Teeth.

Pain of dental origin is the most common of all forms of suffering requiring treatment. In most instances it is an easy matter for the skilful dentist to give prompt relief. In other cases this is not so readily accomplished.

When the case is one in which the tooth is sore to percussion and elongated, with pain diffused over a large area, and a history of increased suffering upon contact with anything hot, while cold water held in the mouth gives a sense of relief, the conclusion is arrived at, at once, that

the sore tooth contains a putrescent pulp with confined gases of decomposition. Relief from all distressing symptoms follows immediately upon opening into the pulp chamber.

In another case exactly similar to the above in its diagnostic symptoms, opening into the pulp chamber fails to give relief for the reason that pyogenic organisms have found lodgment in the apical space and pus has already begun to form.

In the former case an alveolar abscess was aborted, while in the latter it was too late and the abscess must be left to pursue its agonizing course, or the infected area must be broken up by surgically ablating the apical space, or by having the tooth extracted. In either instance the diagnosis is not difficult and the remedy is plainly indicated.

Some confusion in diagnosis may arise, however, when several teeth in the same neighborhood are in such condition that any one, or possibly more than one of them may be the cause of suffering. In such a contingency resort to the galvanic current may be had to determine the question of vitality or the X-rays may be employed to reveal the condition of the several roots.

Pain arising from pulpitis is almost invariably reflex. Where there is an open cavity almost or quite exposing the pulp, there is no difficulty in locating the trouble, and, usually, in giving prompt relief.

When, however, a pulp becomes inflamed in a tooth which has been filled, and when there are several other teeth in both dentures which also have fillings, this circumstance, together with the reflex character of the pain, makes diagnosis quite difficult, at least in so far as locating the exact tooth is concerned. The thermal test is helpful though not always conclusive. Sometimes the only resort is watchful waiting.

Upon the character and duration of pain and the varying response to thermal stimuli, depends the accurate diagnosis of affections of vital pulps.

Inflicted Pain.

By inflicted pain is meant pain arising out of operations upon vital tissues as distinguished from that which is the result of disease.

The employment of anesthetics, general and local, has banished inflicted pain incident to surgical operations.

That which comes afterwards is a different story.

The sensation which accompanies the cutting of hypersensitive dentin is, as Dr. Loeffler truly says, in a class by itself and can hardly be described.

A physician once said to me that he would not call the sensation "pain," but that it was simply something he could not endure.

Certain it is that the dread of the suffering incident to cavity preparation is responsible for the loss of countless teeth. To remove this obstacle to the preservation of useful organs is a worthy ambition of the dental profession and in the interest of humanity.

Painless dentistry, for so long the uncoveted claim of the disreputable advertiser, is now ardently sought by every dentist and imperatively demanded by his patients. The latter have become wise to the possibilities of modern dentistry. So general is the impression that dental operations need not be painful, that one feels like apologizing if one gives the least pain in operating upon the teeth.

Painless Dentistry.

Has painless dentistry arrived?

The answer is both yes and no.

Yes, if one has the enterprise and the courage to make use of the means at hand.

No, if one is unwilling to assume the risks attending their employment.

Nitrous oxide and oxygen analgesia is a demonstrated success as a means of obtunding sensitiveness of dental and other oral tissues, but the apparatus in use is cumbersome and disquieting to most patients, and its general employment is not devoid of danger.

Blocking off the nerve supply to the area to be operated upon by infiltration or conductive anesthesia, the injection of novocain into the vascular tissues in the immediate vicinity or about the nerve trunk at the foramen through which it enters to serve the upper or lower jaws, or parts of them, will give complete immunity from pain in operating upon the tissues supplied, but the use of this method calls for a highly specialized technique not possessed by all, and is also fraught with some danger.

For obtunding hypersensitive dentin the high pressure syringe gives results. The objection to its use is that no effect is produced unless the pulp itself is suffused with the cocain, from which it might not recover.

Dr. John Buckley's Desensitizing Paste.

Drugs applied directly to dentin have been practically without results in overcoming hypersensitiveness. It remained for Dr. Buckley to solve the problem with his desensitizing paste, in which a volatile substance (formaldehyde), capable of destroying living tissue, is hermetically sealed in contact with dentin for a limited time.

Since its introduction, less than a year ago, Buckley's paste has been the subject of much criticism, and several articles have appeared designed to prove that it is unsafe to use it in the treatment of hypersensitive dentin, it being claimed that eventually the pulp will die.

That Buckley's paste will desensitize hypersensitive dentin there is no question or doubt. Anyone who has used it for that purpose will testify to its efficiency, and if used with discretion there should be practically no danger of destroying the pulp of the tooth.

To use it with discretion it is requisite that the smallest quantity possible should be applied to the hypersensitive area; that the cavity should be sealed over the paste, preferably with cement; that it should never be placed directly over the pulp in deep cavities; and that it should be left in not over twenty-four hours.

Yet there is some liability that the vitality of the pulp may be seriously imparied or utterly destroyed by so powerful a drug as formaldehyde, especially the concentrated form, trioxymethylene, as used in Buckley's paste.

Thus it is seen that practically all the methods in use for desensitizing dentin are hedged about by dangers either to the pulp of the tooth or to the life of the patient.

Are we, as a profession claiming to be progressive, justified in discarding all the means of alleviating suffering incident to our practice because, forsooth, there is some risk attending their use?

Does the surgeon hesitate to place his patient in a state of profound anesthesia because chloroform and ether have been the cause of many deaths?

I want to reiterate and endorse what Dr. Loeffler says at the close of his paper, that "it is the duty of all members of the dental profession who have the interests of humanity and their profession at heart, to employ, from now on, all the available means for the alleviation or abolishment of human suffering."

Memory of Pain.

It has been said that one cannot remember pain. To be able to recall the actual suffering, mental or physical, of past pain to the extent of again enduring the acute agony of it, is mercifully spared us. And it is well that it is so. But we can recall the cause and occasion of pain and thus be prompted to avoid a recurrence of it.

And again, as Prof. Goldschneider says, as quoted by Dr. Loeffler, "it is chiefly in the reminiscence of one's own pain, both physical and mental, that love and active charity are rooted."

On the other hand, one may forget, for a time at least, an existing pain. This is particularly true in the case of long continued suffering which has assumed a chronic form.

If the mind becomes engrossed in a train of thought apart from the pain itself, one becomes oblivious to it.

This fact suggests the psychological treatment of pain which in many instances has proven efficacious.

The Chairman. It is with a great deal of pleasure, and something of a coincidence that the present President of the Illinois Society has the opportunity of calling upon a Past President of that society. For some reason, some years ago, Dr. Garrett Newkirk, of Chicago, moved to Southern California, and his radiating influence has spread from his present location just as it did in the City of Chicago. Dr. Garrett Newkirk, of Pasadena, will speak to you upon "Medical Superstitions."*

Dr. Newkirk then read his paper.

The Chairman. This paper is peculiarly characteristic of the essayist, and I am sure we all feel that no matter how far we have come to attend these sessions, we would be well repaid if we heard nothing else but this one paper. The Doctor did admit that quinin had a little effect but that is the only drug to which he gave any consideration. Dr. G. H. Walker, of Los Angeles, Cal., will open the discussion.

Discussion of Dr. Newkirk's Paper.

Dr. G. H. Walker, Los Angeles. Dr. Newkirk has presented to us a paper of unusual nature, and upon second thought of more importance to the whole medical fraternity, including the specialties, of which dentistry is the most important, than might at first appear.

Superstition is generally bad, not because the particular thing about which the individual is superstitious has, or has not, any material importance in his life, but it is bad because of the mental attitude he assumes when he gives himself over to things mythical, mysterious, recondite.

Superstitions vary in gravity from the simplest form, as the "new moon," "the black cat," "the broken mirror," etc., to the more serious forms which make fanatics of men.

To say that my ideas of this subject differ from the essayist's would not be correct. We have all seen errors made in the application of drugs therapeutically, and we have all made errors, and have placed our faith and hopes in agents which have failed us. Whether this placing of confidence in an agent, or the belief that it will do a certain thing, or the use of it because someone said so and so, constitutes a superstition, or not, I am not prepared to decide.

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*See Vol. I. Page 363.

As for superstitions, probably every member of the human family has one or more, and they may not begin nor end with that "new moon," or "Friday the thirteenth." Many times have I heard someone inject a bit of boasting into his conversation, and ere he proceeded there came the dull sickening thud of "rapping on wood."

There are more superstitions among the ignorant, and the religious, and a man whom I once knew, and who had had great experience in the care and treatment of the insane, remarked that more people were insane over religion than any other thing, if not all other things; and from the way people have of late accepted unsound and superstitious religious doctrines, I doubt not but that he was correct.

I have said that my ideas on this subject do not differ from those of the essayist. They quite agree, I believe, with the thought he has expressed, but I am sorry he did not carry this thought to its logical ending. We have been given the thought that the whole condition is one of "mind." "There is in each body a force, a central discriminating agency that is beyond comprehension. It cannot be discovered nor analyzed by any thought process. We have simply to recognize its existence as a base of theory and practice."

But how about medical superstitions—superstitions which have some bearing upon the cause or treatment of the disease, as well as superstitions regarding the agents used? The trouble with our drugs may not lie in their lack of potentiality, but that we do not understand their virtues. This is ignorance.

Alcohol as a food *is* of questionable value. As a stimulant, for therapeutic purposes it may be of great value. The misuse of any drug or agent is simply ignorance. A belief that it may do certain miracles may be superstition, which is the eldest child of ignorance.

I once heard a dentist, well known in my locality, say that there were three drugs with which he could treat almost any condition which he might be called upon to treat. Some time later I had occasion to treat one of his patients for a simple condition, a highly inflamed and painful gum tissue about an erupting third molar. I was informed that the doctor had done nothing but "swab the gums twice a day with iodin." Now to add fuel to the fire by putting an irritant to an acute inflammatory area may be superstition, but to me it savors of the parent ignorance. The ancient Chinese recommended, among other things, "bats," as preventive of caries (I refer to the animal of that name, not the dissipation) and the excrement of that animal, powdered, to whiten the teeth.

The early Roman treatment for painful gums consisted in rubbing them with the tooth of a man who had died a violent death.

These treatments were many years ago, but I have just heard of a very recent and up-to-date treatment for rheumatism. A very wealthy woman I know has within a very few weeks been cured of rheumatism. I have seen her hobble from this disease. When asked the cure she very confidentially said, "Well, I saw an advertisement of a wonderful stone, which, if worn about the neck would cure rheumatism. I couldn't forget it, and one day I sent for the stone, at a small expense, and wore it, and now my rheumatism has absolutely gone."

I do not know what effect the ancients got from "bats," but here is a woman who had rheumatism, wore a magic stone and was cured.

We have all heard of the man who had an abscessed tooth with a large cavity therein, who deserted his dentist and went to a religious fanatic and paid a dollar each for a few treatments, some of which were given him during his absence, and which, no doubt, like the much vaunted Cascaret, "worked while he slept." At any rate the abscess disappeared, entirely cured, and as the story travels it grows, and now the cavity in the tooth is also healed.

That great man, the late Robley D. Evans, was said to have been a profane and unbelieving man. He was known as swearing Bob Evans. He was also known to pray earnestly and continuously for long periods. He once explained this to a friend as the best method of obtaining something he greatly desired. He had no belief in a Deity, but he had often proven to his own satisfaction the effect of prayer: as he expressed it, concentration. The essayist says "no effect without cause." *This must be true,* but it does not follow that we shall always know the cause, or antecedents of what we see.

The only explanation, or hint at an explanation I am able to find, is the human mind. No one has ever been able to analyze the reactions which take place in the mind. Nothing has been proven about mind any more than has been proven in all ages about heaven and hell.

And now comes that reference to *"Vis Medicatrix Naturæ,"* which brings to my mind what I consider greater medical superstitions than any of our own petty ones regarding some drugs.

In opening this discussion I made the statement that "superstition is generally bad." Now listen to what Dr. Henry S. Munro has to say (page 156) in his book on *"Suggestive Therapeutics."* "People are hypnotized by their beliefs. Belief in an idea or a thing, or a creed or a drug, or a man, or a woman, *is the place where the individual relinquishes self-responsibility,"* and right there is why I say superstition is generally bad. A "superstition is a belief," etc., as quoted by our essayist. "People are hypnotized by their beliefs," says Munro.

Suggestion.

Now before the individual can believe, something must draw the attention of his mind to the thing he is to believe, and this we call suggestion. Listen again, please, to what Munro says about suggestion. "Suggestion begets faith, confidence, and belief, and is at the bottom of Christian Science, osteopathy, patent medicine cures, electro-therapeutic quackery, magnetic healing, divine healing, mental science, metaphysical healing, faith cures, and such like."

Now what about this hypnotic condition brought about by beliefs? What is the medical relationship? To again quote Munro:—"In the hypnotic state we can influence and make such impressions upon the subconscious mind as will be fully carried out in its influence over the physical organism. The subconscious mind presides not only over the involuntary functions, but over all cell life—function and development. It presides over the processes of digestion, secretion, excretion, nutrition, waste, respiration and calorification."

"By suggestion one may produce emesis, cure alcoholism, sciatica, hysteria, neurasthenia with delusions, hallucinations, insomnia, and neuralgia, and it is of value in nearly all manner of operations, and nearly every sensory function can be controlled by it."

No doubt Dr. Munro knows something of what he has written, at least he has written an extremely interesting book. And now what about the "bat," and the "dead man's tooth," and the "magic stone," and the "abscessed tooth," and "prayer of the unbeliever"? They were all beliefs?

"People are hypnotized by their beliefs," says Munro. He has also told us what can be done under hypnotism, by suggestion. What conclusion do you draw in your own mind. Could it be possible that this readjustment of our subconscious being plays any part in *"Vis Medicatrix Naturæ"?*

Truly the physician should know all that is possible for him to know about the physiology of nutrition, and the value of foods, and of surgery. He should understand chemistry, pathology and bacteriology, and many other things, and last and always he should understand suggestion.

Had he understood this and practiced it through all these years there would not now be one of those superstitions which we know as Christian Science, osteopathy, electro-therapeutics, magnetic healing, divine healing, mental science, metaphysical healing, faith cures, and so on, on, without end. As the essayist has said, "there is nobody to blame but the regulars themselves."

And why do I call all these the great medical superstitions? Every

one of them may at times cure. They are superstitions because, (quoting from the essayist's definitions), "it is veneration of objects not deserving veneration, * * * * attaching undue importance to ceremonies, etc.," they are "belief in some * * * * system which seems unreasonable, except to the believer himself," and lastly, they are "popular notions, attributing occult influence of some kind."

And now what about the essayist's definition: "A superstition is a cipher, disannexed from any figure of fact"?

I will agree with him regarding its being a cipher, and valueless, but if Dr. Munro knows what he has been talking about, and I think he does, it is not disannexed from any figure of fact, for at the bottom of all superstitions is suggestion, and suggestion comes about as near to being a fact as our very life processes.

Now, therefore, if medical (or, as I take it, curative) effects are accomplished by forces without and within the being, have we not reduced things mysterious to the lowest possible denomination?

Then why attribute these "effects" to religion, manipulation, nostrums, electricity, magnetism, divine healing, metaphysics, and f·i· cures? Why not be honest, as we are intelligent, and give credit where credit is due? Is there not glory enough for religion in being able to guide our souls, without filching credit from that power known as suggestion, thereby making itself the greatest of all superstitions, as well as the greatest "medical superstition"?

And now we have them. The little superstitions, and the big superstitions. What shall we do with them?

The Chairman. It seemed to me as Dr. Newkirk was reading his paper that it would be a difficult one to discuss, and I am sure we must all agree that Dr. Walker has acquitted himself well. The paper was to have been discussed also by Dr. Frank I. Shaw, of Seattle, Wash., but Dr. Shaw is absent. I would like very much to throw Dr. Newkirk's paper open to general discussion, but unfortunately, we cannot do it, because of the length of our program. We will grant Dr. Newkirk the lady's privilege of having the last word.

Dr. Newkirk. I am very sorry that we make such mistakes. This paper was purposely put in extravagant terms and made one-sided to bring out much discussion. I am not disposed to dispense with all drugs, not by any means. I would like to have discussion by such a man as Dr. Buckley. I know he could haul me over the coals in great shape. That is what the paper was for, to excite discussion. There is nothing else I can say, except that

I use a few drugs, and I can get along with very few, too. I did want to emphasize the fact that there is so much of it that the doctors accept that is unscientific in practice.

The Chairman. Gentlemen, there is another paper to be read this morning, and although it is late, I hope you will remain, for I am sure you will be well repaid. Dr. John F. Biddle, of Pittsburg, Pa., will read a paper upon "Therapeutic and Surgical Treatment of Roots and the Adjacent Tissues.*

Dr. Biddle read his paper.

The Chairman. I am sure we all appreciate the detail into which Dr. Biddle has gone in this paper. All of us can go home and treat teeth according to the method prescribed oy Dr. Biddle, he has been so specific. The paper will be discussed by a man prominent for years in the affairs of the National Association, Dr. Thomas P. Hinman, of Atlanta, Ga.

Discussion of Dr. Biddle's Paper.

Dr. T. P. Hinman, Atlanta, Ga. In discussing a paper of such value to our work, there are a few things to which I would like to call specific attention. I am not in accord with all that Dr. Biddle has said. There are some questions involved in the treatment of root canals that have never been satisfactorily solved. Let us start out as near as possible to the beginning of his work, and that is as to the use of cresol, unquestionably a wonderful remedy in the proper place; but if he expects it to produce sterilization in the root canal, then he is in error; or, if he expects it to destroy the granulomatous tissue beyond the apex, he is again in error. He cites a large number of cases treated in the college clinic, and the number of cases is very remarkable, considering the conditions under which he operated. The simple fact that after the root has been treated and filled it gives no more trouble does not mean necessarily that the disease is cured. The radiograph is one of the most valuable aids that has ever come into dentistry. And I speak with some authority, for I began the use of the radiograph in 1897, just one year after its discovery. I have taken thousands of radiographs of all conditions, including radiographs for general surgery. My observation has been that very few men are able to read the truth in the radiograph. It takes years of experience to know just at what you are looking. Therefore, I question the Doctor's cures, because after the treatments have been made and the teeth have been

* See Vol. I. Page 374.

filled, if there is any granulomatous tissue around the apex, it will remain, unless we can remove it or treat it in such a way as to destroy it. I have never tried his method of treatment, but if the forcing of sulphuric acid through the apex with a hypodermic syringe destroys the granulomatous tissue, then he has accomplished a wonderful thing. This can only be proven by subsequent radiographs, not in three or four days, nor in five or six months. You can only prove it by radiographs after a long period of time.

Root Amputation.

The Doctor mentions root amputation, an operation I have performed for many years, and it is a fact that even when this operation is performed, if the least particle of granulomatous tissue remains in the area of the operation, you will not effect a cure. It is also a fact that if you extract teeth with the so-called blind abscess (and that is what I am talking about when I speak of granulomatous tissue) if these teeth are the cause of systemic disorder, the simple extraction of those teeth will not destroy the cause, because radiographs have shown that an area of rarefaction will remain within the bone, even after you extract the teeth. Therefore, in all such cases, you must use the curet. I say the curet. I do not say the bur. I have abandoned the bur. You have to cut off the apex with the bur, but it has a tendency to force the apex into the surrounding tissue. When I say remove it, I say remove it all.

Root Filling.

There was one thing I had hoped Dr. Biddle would bring out, and that was the question of the filling of root canals, one that has interested me more, since I have been doing radiographic work, than anything in dentistry. After taking thousands of radiographs, I challenge the dental profession to find two per cent. of canals that are filled reasonably well. We are getting some knowledge along that line, and are improving our technique. You must remember in this particular work that we must be able to attain sterilization.

Going back to cresol, it is most excellent in many acute cases, splendid; and I used it in such cases, but if Dr. Biddle depends on that beyond the apex, I cannot quite go with him that far.

As to forcing through a normal salt solution, two ounces, I have this criticism to make. If you have ever made such an injection, you will realize that it takes a great deal of pressure to force a solution through a hyperdermic needle, but you may be astonished if I tell you it requires forty pounds pressure. I altogether question the wisdom of using such treatment. If there is any infection beyond the apex, I would be afraid

of spreading it. I would like to ask the Doctor his object in forcing the sulphuric acid through?

I thoroughly agree with him that after the root canal is filled, the filling should never be taken out. It would be a most foolish thing to go into the root canal again. That is absurd.

I want to agree with him in his emphasis upon the thorough cleansing of the operator's hands and keeping the instruments sterile.

I have just a few slides here which I will show and get through very rapidly.

(Demonstration with slides.)

Dr. F. Biddle. If I might be allowed to write another paper on the subject, I could answer all the questions put down by Dr. Hinman. It is impossible to cover all the phases of any one subject in one paper. I tried to confine myself to certain issues and I did not expect Dr. Hinman to agree with everything I said. Nevertheless, I get results. If you get results with something else, use it, because the method that brings results is what counts.

As for all my cases being cured, it is true, as Dr. Hinman said, that because the tooth does not cause active trouble, that is not proof that there is no trouble. But I have quite a few cases in which operations have been performed on teeth two, three, four, and even five years ago, of which I have radiographs taken last year, and if my good friend, Dr. Hinman, wlll stop in Pittsburg on his way home, I should be mighty glad to show him some of these results. It is impossible to cover every phase of this subject. I have over three hundred lantern slides which I use in connection with my school work, and which would practically cover this discussion.

Dr. Hinman mentioned films in preference to plates. The plate is very seldom indicated for dental work. As an instance of this I will quote one case. A young man had an enlargement of the glands of the neck. Physicians took plates through both sides of the head. The angle at which the plate was taken revealed apparently an impacted cuspid tooth, and as he did not have a cuspid tooth, they started to find it. An opening was made into which I could insert the end of my thumb. When the case was referred to me, a dental radiograph was made and it was found that there was no cuspid tooth present. The error was due to the manner in which they made the plate. A shadow was present which resembled a cuspid tooth to a man not familiar with such work.

Dr. Hinman speaks of forcing solution through the canal and out through the sinus. He said he is very doubtful about this method, because the solution may be forced into the deeper structures. You may

if you do not have a proper opening. I never attempt to force solution until I have passed a probe through the canal and also the sinus.

I use four radiographs to make sure of correct root fillings. If you do not use radiographs, it is an accident if you have the apex properly filled.

The Chairman. We want to thank the essayists. This closes our session for to-day. I also want to thank the members of this audience, because most of you have been here since nine o'clock, and you are still here at a quarter of one.

Upon motion, duly seconded, the meeting adjourned.

September Sixth.

Dr. Van Orden. I have been requested to act as Chairman of the meeting until the arrival of Dr. Buckley, who has been detained.

Dr. Smith, who is to read the first paper, is absent just at this time, but Dr. Howard R. Raper, of Indianapolis, Ind., is on the program for a paper entitled, "Bad Canal Work—What Shall We Do About It?"* I take great pleasure in introducing to you Dr. Raper, of Indianapolis, Ind.

Dr. Howard Raper, Indianapolis, Ind. This is on the theory that something is better than nothing. (Laughter.) Which may or may not be the case.

The title of this paper is "Bad Canal Work—What Shall We Do About It?" The answer is that we shall do better canal work, and that we shall do less canal work.

(Dr. Raper then read his paper, concluding as follows:)

I turned this paper of mine over to a friend or two, and after reading it they have been either ominously quiet or they have criticized me. One of them said, "Why don't you stick to your own subject—the use of radiographs in dentistry?"

Let me say that I never adhered more closely to my subject—the use of X-rays in dentistry—than in this paper, because the problem that I am dealing with is one that has been created by the use of the radiograph in dentistry.

Suppose there was not any such thing as the radiograph. If that were the case we would be back where we were several years ago listening to the men who came to our meetings and said, "Yes, I reach the apex of every canal and fill it clear to the end, and never have any trouble at all thereafter." (Laughter.)

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* See Vol. I. Page 314.

The men who refer patients to me for radiograph examinations, refer them repeatedly, and I show those men frequently that their canal work is not good enough. These men and I do not have any personal arguments about it, because I do not blame them. It is fatal to blame individuals when all of the individuals are the victims of a condition. But these men say to me again and again, "What am I going to do about it?" This is the answer, "A publicity campaign." They cannot do anything as individuals. The only thing that they can do as individuals is to increase their fees, and that limits the treatment to those who can afford to pay.

Another man, after reading this paper, said, "Oh, I thought your paper would be on the *technique* of treating and filling canals." Now why should I read another paper on the technique of treating and filling canals? You have had a number of such papers.

There remains the economic difficulty of applying these principles after you have them, just as in the medical profession, men are troubled with the problem of administering vaccines. The first vaccines were autogenous and they were used in conjunction with much laboratory work. That was too expensive. Hence the use of stock vaccines, without any accompanying laboratory work at all, which is no better and no worse than the pulp canal surgeon of the dental profession.

I have been a teacher at the Indiana Dental College for eight years, teaching students how to do canal work, and after graduating, the best students come back and say, "Doctor, I believe the methods you taught me are the right ones, but my patients will not pay for such work."

Understand that this complaint comes from the best students that I have. The poorer ones, apparently, do not have any trouble at all in applying correct methods—because they do not try to apply them. (Laughter.)

Just one more point. Another friend of mine said (and he shook his head) "This paper is beneath your dignity." Can you imagine it? And, "Is it ethical to use bill-boards?" Now if you had something to say to a Frenchman, for instance, and he could not speak English and you were going to tell him the truth, would it be unethical to say what you had to say to him in French? Certainly not. Likewise, this method I have suggested for reaching the public is the only one by which we can reach that public.

If any of you have it in your minds at all, that this thing cannot be done, get it out of your minds. The National Association *can* do it. Already there is a scheme on foot to accomplish it, and if this scheme fails, there are other schemes which can be made to work.

I thank you. (Applause.)

(During the reading of the foregoing paper, Dr. J. P. Buckley entered the Hall and took the Chair.)

Chairman Buckley. The Chairman wishes to apologize for being late this morning. He was trying to validate his ticket preparatory to getting away this evening.

I am sure we have all enjoyed the paper of Dr. Raper.

Dr. Jones. Mr. Chairman, I move that this paper be referred to the Trustees of the National Dental Association for their consideration.

(Motion seconded and carried.)

The Chairman. The discussion of this paper will not be lengthy. Dr. Smith is here and I know you are anxious to hear him. In the absence of Dr. C. N. Johnson, of Chicago, who was prevented from attending this conference by an accident—not serious, but sufficiently so to keep him away—I am going to call on one of Dr. Johnson's boys—Dr. A. C. Wherry, of Salt Lake City.

Discussion of Dr. Raper's Paper.

Dr. A. C. Wherry, Salt Lake City, Utah. The paper just presented is rather an innovation. Not in the light that you were all considering, but rather from the fact that the essayist has presented to you a carefully prepared paper, and at the same time has opened and closed the discussion with the final word. That, perhaps, in the face of the morning's program was appropriate, and in saying a few words I assure you I will be brief.

In the consideration of root canal technique, in dental society work, as Dr. Ottolengui said the other day, the discussion is never closed.

The consideration of this most important subject certainly is valuable. Discussed from any angle, it stimulates the operator to a more thorough appreciation of the duties and details, and now, in the presentation of this suggestion the essayist has offered to your minds a new thought for the disposal of the root canal work. He has given you the views of several of his friends and, to my mind, their comments are sound.

As I see it, if we could put before every citizen of the United States to-day this one matter, carried there by all the force that the National Association could confer, it would fall far short of the aims of the essayist.

What man of you, or what dentist present does not daily hear from his most conscientious and most capable patient this same remark: "I know I should not do it." They all know they should not do

it. They know they should not neglect their teeth, and the fact that they might have this matter presented with their shredded wheat in the morning, or with their old-fashioned toddy at night, will not take them to the dentist until that one best persuader, pain, comes along to remind them that they must go.

Only a few years ago—I believe it was at the National meeting in Washington—the motto, "A clean tooth will not decay," was sent broadcast over this land of ours as the prevention of all decay of teeth. You know, and everyone of us knows, that, approximate the perfectly clean tooth as nearly as possible and you will still have cavities to fill. Physical reasons conspire to make our services perpetual. And so that motto, "A clean tooth will not decay," is bound to fall far short of our greatest hopes and aspirations. So will this motto. It may, and I grant you it perhaps will be a missionary in our cause, but it will never produce the great effect, and the lasting benefit that we might hope for it.

Had the essayist advised us to present to our patients a few of the epigrams that he prepares and show to the thinking citizens how absolutely impossible it is for the most conscientious man, in many instances, to attain that degree of perfection which our friend Dr. Rhein has reached, then perhaps we might instill into those minds a greater realization of the dangers they undergo by taking a chance at bad root fillings.

I believe if we could educate patients as to how absolutely impossible it is to attain perfection in root canal work, they might be made to realize that having a devitalization and root canal filling is not so simple a procedure as they now think it.

I want, in closing, to subscribe myself as one devoted to any good cause which will prevent the need of root canal work, but I do not believe that in the presentation of this motto you will attain the desired end.

The Chairman. I am sure if Dr. Johnson were here he would be pleased with the discussion of his substitute.

I saw Dr. Ottolengui Saturday, and he told me it would be impossible for him to remain in the city, but he wanted me to express to the body that he heartily endorses the words, "radiodontia" and "radiodontist." I will ask Dr. Van Orden to take Dr. Ottolengui's place.

Dr. Van Orden, San Francisco, Cal. I wish, first of all, to express the pleasure and surprise that I felt in the reading of this paper. I had no idea of its contents and to find it going so quickly and so directly to the very root of things was a very great satisfaction.

I do not agree with Brother Wherry in his pessimism or in his doubt about the ability to get things done; but I do think that in addition

to trying to get things done by the public, we have a great deal to perform for our own individual selves in the way of acquiring the ability to do the work ourselves and to prove that it can be done.

I appreciate too, the Doctor's leniency in regard to our shortcomings. I am very glad of that, because I like a little leniency toward my own shortcomings, and he did say we must not blame ourselves nor take blame from others for the mistakes that we have made in the past through ignorance; but that he would scold us for a repetition of them; and that is just.

In regard to root canal work and compensation therefor, I think that you will find, that nine out of ten patients will respond to some such argument as this. I used to be in the habit of saying to patients, "In regard to your root canal work: It is very doubtful if you are culpably responsible for what has occurred here. It is a great misfortune and I am sorry, but you know in all walks of life when people are not compensated for what they are doing, they are apt to be negligent or do something for which they can be paid." I am glad to say that most people respond to an argument of that kind.

With regard to the motto: I suppose we could suggest a dozen mottos, so I am going to suggest just my motto, and I think it will interest you, because it suggests an epochal condition to-day, one that is almost incredible to most of us, and that is the interest taken by physicians in teeth. "Do not neglect your teeth. Neglect of your teeth may cause rheumatism, heart disease and chronic ulcers. Ask your physician." (Applause.)

The Chairman. I think we might as well send to the Trustees this suggeston of Dr. Van Orden as well.

Dr. Raper. First, answering the discussion: Attention was called to the fact (and of course, it is a fact), that this sign will not make everybody make an effort to prevent having the toothache. Of course, it will not, but don't you see the great, big advantage of having something short before the public all the time, telling them only one thing—just the one thing that you want them to do?

Arouse the curiosity by saying, "If you don't know what this means, ask your dentist." A man reads, "Never let your teeth ache." He has always known he ought not to let his teeth ache, perhaps, or perhaps he did not know that toothache could be avoided. Many take it as a matter of fact that it is unavoidable.

Suppose that sign is before them all the time, "If you don't know

what it means, ask your dentist," at last they say: "Perhaps there is something about it that I do not know."

In regard to ability, perhaps some of the members of the profession lack the ability to apply the better methods in root work. It is not a question of ability. Men who have the ability have no economic sociologic opportunity to use their ability.

I appreciate the evident mental disturbance you have had, Dr. Van Orden, to produce what you would like to say to the public, but your message is too long. That will come later, and it must come later, but at first we must get the public's attention, then you can scare them if you want to and tell them they are going to have rheumatism.

Now, morally, have we any right not to get at the public? Talk about whether we *shall* do it not, we haven't any right *not* to do it. The medical profession does it. They could not treat tuberculosis to their satisfaction, so they established a tuberculosis campaign to do it. We cannot treat pulp conditions without a campaign. Let us establish a publicity campaign to help us with our canal surgery. (Applause.)

The Chairman. Dr. Raper is not only a fine essayist, but he is a natural born teacher.

I want to thank Dr. Raper for this unique and splendid paper.

Now this audience must, of necessity, be interested in conductive anesthesia. The first time I met the next essayist was at Milwaukee, a number of years ago, where I witnessed a clinic, at that time the most successful one I have ever seen on this subject, given by Dr. Arthur E. Smith, of Pittsburgh, Kansas, on analgesia. I think you all know what an enthusiast he was. I was more than surprised less than a year ago, at our Chicago Dental Society meeting, to see that Dr. Smith had became as enthusiastic on the subject of conductive anesthesia as he ever had been on the subject of analgesia. I have heard Dr. Fisher and I am saying nothing disrespectful to him. He is a noted and eminent scholar, but I want to say that I heard Dr. Smith describing the technique of conductive anesthesia better at the Chicago Dental Society than I have ever heard it before or since, and it is a great pleasure for me to introduce to this audience, Dr. Arthur E. Smith, now of Chicago. (Applause.)

Dr. Smith then read his paper, entitled, "Local Anesthesia."*

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* See Vol. I. Page 319.

Discussion of Dr. Smith's Paper.

Dr. J. P. Henehan. Cleveland, Ohio.

Dr. Smith is to be congratulated on the effort he has made in behalf of the members of this Association in presenting to us a paper so complete and replete with historical facts and practical suggestions. His effort brings us up to the minute in our view of the anesthetic situation to-day.

The Doctor also adds his bit of acknowledgement to the debt of respect, honor and gratitude which the world owes to that illustrious member of our profession, Dr. Horace Wells, for the blessing which his keen perception and initiative enabled him to present to society.

We are living in a wonderful day and age. We practically see the point of perfection reached in anesthesia as in many other directions. The efforts of the ages have shown no preference for either general or local anesthetics so long as anesthesia was attained. It was indeed a wonderful blessing which I am afraid we of to-day can hardly appreciate, which was achieved when general anesthesia was discovered. To-day we see anesthesia brought up to the point of perfection through the use of the very first general anesthetic agent discovered and successfully employed, N_2O combined with oxygen and used in conjunction with local or regional anesthesia to permit of shockless operations.

Cocain.

The development of our knowledge of local and regional anesthesia depended entirely upon the discovery of the anesthetic properties of cocain.

The unfortunate circumstance connected with the whole affair was the freakishness of the action of that drug. Many tragic accidents resulted from its use and gave rise to a deep and far-reaching fear, not only of cocain, but of all its substitutes and more than anything else, retarded the development of that science.

However, cocain has played a good part inasmuch as it has been the foundation upon which the science has been built and with which results have been compared.

The object of the search has been the discovery of a substitute for cocain which, at the same time, would be efficient and harmless.

Novocain.

It is claimed for novocain that it is all that science has been looking for. It is claimed to be seven times less toxic than cocain and that its action is uniform. It is non-irritant to the most sensitive tissues.

When properly prepared and in normal salt solution enormous quantities may be injected without danger. As much as two hundred and

fifty c. c. of a five-tenths per cent. solution is commonly injected in extensive surgical procedures.

In dentistry the results attained are limited entirely by the skill of the operator. It is absolutely necessary that definite technique be followed. It requires a knowledge of the osteology and nerve distribution of the mouth. Anyone attempting to go about this work in a hit or miss manner can look only for failure of his effort. On the other hand, I can say that I have not known of a single man who has made a proper study of the subject who can report anything but most gratifying results.

Although my regular work is done chiefly by the aid of nitrous oxide and oxygen, still I welcome the perfection of this method of conductive anesthesia. It vastly simplifies certain operations. For instance, the preparatory stage before the removal of impacted third molars and upper cuspids may be done with greater ease to the patient and with greater attention to surgical cleanliness. While this form of anesthesia cannot replace nitrous oxide and oxygen it has a place all its own.

Operative dentistry offers the chief field for this form of anesthesia. The average general practitioner who intends to use it only in his extraction cases is, to my mind, wasting his time. It is for preparing cavities in teeth, preparation of teeth for jacket and other forms of crowns, and in fact, any other operation upon a tooth that will give the chief reward to him who shows enough energy, interest and initiative to perfect himself in its use.

I have made hundreds of injections for my own operations and for other dentists and uniformly satisfactory results is the report I have to offer.

The longest surgical case I have operated upon under conductive anesthesia, was for the removal of an upper cuspid tooth impacted in the palate process between the mouth and nasal passages with the apex of the root extending backward towards the soft palate. This case required one hour and fifty minutes for completion. Great care was necessary to prevent the creation of a cleft palate, which explains partly the great length of time. At the end of one hour and a half no sensation save traction was complained of by patient. After that some pain was noticed and the anesthetic was renewed. A comparatively small opening was all that was made and the patient reported over the telephone the next day that he was not suffering any pain.

This is in effect the result following most cases, only that due to the suprarenin, a condition of local anemia persists for some time following operation and will result in the condition of dry socket, unless attention is given to this detail.

The chief warning to be given is in regard to thorough asepsis and care not to introduce the needle into an already infected area; no matter how slight the infection, it will result in the spreading of the condition.

Care must also be given the selection of the novocain suprarenin tablets. Due to imperfect packing in some bottles, suprarenin deteriorates and imparts a brownish cast to the tablets, in which case they should be discarded as unfit for use.

The needles used may be left entirely to the fancy of the operator; some use steel needles and others platinum. The result is in no way affected provided the proper technique is followed.

This subject of anesthesia is one of the most vital before the profession to-day and it is advanced far beyond the experimental stage. It is a perfectly developed subject and each man is expected and in duty bound to practice it.

There is no great difficulty for those with sufficient ambition, to learn all about this subject.

Study Classes Recommended.

I believe as I have stated before, that our dental societies should appoint committees on special education for the benefit of their members and exercise supervision over post-graduate courses. With such an arrangement the very best man in the country could be induced to give special courses of instruction and the arrangement would be the very best for the dentists.

The Chairman.

Our time is up, therefore, we will not have time for the discussion of this valuable paper, other than has already taken place, as we have a general meeting immediately in the Assembly Hall.

There is no further business and a motion for adjournment is now in order.

(Motion made, seconded and carried.)

Adjournment.

Discussion of Papers Presented in Section VI.

Oral Surgery

Section VI.—Oral Surgery.

Chairman: Dr. Truman W. Brophy, Chicago, Ill.
Vice-Chairman: Dr. Adolph B. Baer, San Francisco, Cal.
Secretary: Dr. E. S. Barnes, Seattle, Washington.

September Third.

The Section met September 3, 1915, and was called to order by the Chairman at 9:30 A. M. The Chairman in calling the Section to order spoke as follows:

Dr. T. W. Brophy, Chicago, Ill.

It is expected that your Chairman will deliver an address. I feel that to occupy the time of this Section in presenting anything that I may have in mind would be unwise, and I think we should proceed at once to the transaction of such business as we have before us. We have an array of papers on the subject of Oral Surgery, the equal of which I have never seen in any association anywhere. It occurred to us that possibly it might be absolutely necessary to read these papers by title, and let them be published in the official proceedings, not having any of them read in full, but we have with us this morning an audience that is worthy of every consideration. Your presence means that you are eager to know what we have to present. Furthermore, your presence here impresses me with a feeling that you want to know the last word on the various subjects taught by the masters in the profession.

The first paper on the program this morning is by a man who has won a reputation throughout the entire world by reason of his skill, his studious efforts, and his loyalty to the profession, and the work that he has done in the past has placed his name foremost, not only among those who have passed away, but among those who live at the present time, and when I say with all the sincerity that I possess that we are all highly honored by having with us that great master, a man who has done more than any other man living as yet in the field of cranial anatomy, I think you will agree with me. I refer to that great teacher and oral surgeon, Dr. Matthew H. Cryer, of Philadelphia, and if we were to meet here and have only what he presents, the meeting would be an immense success.

Now, Ladies and Gentlemen, we will have the pleasure of listening to an illustrated address by Prof. Matthew H. Cryer, of Philadelphia.

Dr. Cryer then read a paper entitled "A Few Thoughts on the Comparative Anatomy of the Maxillary Sinus, its Relation to the Teeth, Infraorbital Canal and Alimentary System."*

Dr. A. T. Rasmussen, of La Crosse, Wis., read a paper entitled "The Rational Treatment of Chronic Empyema of the Maxillary Sinus."**

Dr. Adolph B. Baer, of San Francisco, Cal., followed with a paper entitled "Surgical Treatment of the Antrum of Highmore."***

These papers were discussed together.

Discussion of Papers by Drs. Cryer, Rasmussen and Baer.

The Chairman called upon Dr. Florestan Aguilar, of Madrid, Spain, to open the discussion.

Dr. Florestan Aguilar, Madrid, Spain.

Mr. President and Gentlemen: I was not prepared to discuss these papers, but I will say something in regard to them. I agree with both of the last gentlemen that most of the cases of antral troubles are of dental origin. Nearly all rhinologists acknowledge that, and we should consider that the treatment of antral disease is very much within our scope.

As to the treatment, I have seen many cases to which the gentlemen have not made any reference, but in which the antral disease has been cured without any surgical treatment, simply by the extraction of teeth. We can assure ourselves of the existence of antral disease by making an exploratory puncture and by means of a syringe extracting a part of the contents of the antrum. If we are sure it is of dental origin, by simply extracting the tooth that has caused the trouble often the disease will be cured.

Mosetig's Paste in Sinus Treatment.

There is one method I have had no experience with, but I desire to mention it. I have seen it used and recommended at a meeting in London at the last International Dental Congress. A doctor at that meeting presented some interesting photographs on the subject. The paper was printed. He recommends a simple treatment, which is more simple than the Caldwell-Luc operation or Denker operation, which is similar to the Caldwell-Luc. It consists in filling the antrum with Mosetig's paste. After making an incision at the height of the canine fossa and curetting the antrum, he fills it with the paste. I do not know

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*See Vol. I. Page 401.

**See Vol. I. Page 428.

***See Vol. I. Page 434.

the exact formula, but it can be found. This paste consists of iodoform and whale sperm. It is slowly absorbed and it is supposed that the absorption is coincident with the healing of the surface of the antrum, and the patient will not need any subsequent treatment. The antrum is filled with this warm paste. It must be used warm, in the same manner as we use paraffin for paraffin injection. The syringe is kept warm by hot water. The antrum having first been curetted, you fill the antrum with the Mosetig's paste and suture the incision.

Dr. Landitti has some skiagraphs showing the Mosetig's paste in the antrum. It leaves a black mark. One can see four or five months after the operation that the sinus is completely emptied of the Mosetig's paste.

The second essayist mentioned the operation of Denker, considering it a simple one. Personally, I think it is rather complicated. It is complicated just as the Caldwell-Luc operation is.

I do not agree with the gentleman who says that filling of the antral cavity with a gauze is satisfactory. On the contrary it is tiresome to have a patient under your care forty or fifty days. I certainly think that if we can have any success by using the Mosetig's paste (and if we are unsuccessful with it, I would prefer the Caldwell-Luc method) it would be better than the rather empirical filling of the cavity with iodoform gauze and repeating that treatment for such a long period of time.

A very ingenious syringe has been devised by an Englishman, whose name I cannot at present recall, for syringing the antrum after surgical intervention. It consists of a double tube, one tube being longer than the other. The two tubes are connected with rubber tubing by means of which the solution in the syringe enters. The liquid or solution is injected into the cavity by the shorter tube, and when the antrum is full, the other tube serves as an outlet for the solution. With this device you can produce continuous spraying of the antrum.

Dr. Jose Novitsky, San Francisco, Cal.

I congratulate the authors of these papers. The antrum seems to be the bone of contention in this field of surgery, and we all have rather radical opinions doubtless in connection with this work.

The first speaker recommended the use of a general anesthetic in connection with this work, and I would like him to give his reasons for giving a general anesthetic. The work at present can be done beautifully under local anesthesia, by blocking with novocain, 2½ per cent. solution, the posterior palatine, the posterior maxillary, the anterior maxillary and the naso-palatine nerves. I have secured anesthesias lasting over four hours by this method. Many of these cases I find very simple. Of

course, I quite agree with Dr. Baer that the radical operation should be done in many of these cases. My experience in the last two cases has taught me that many septic teeth are involved in a necrotic alveolus, and mere extraction will not clean up the trouble. You simply encapsulate the necrotic alveolus which results in a slow toxemia. The pus is not generated fast enough in the average case to produce acute symptoms, but it is absorbed slowly into the circulation from under the antral membrane.

I want to disagree with Dr. Baer when he says that the frontal and ethmoid sinuses should be cleaned up first. If the antrum trouble is complicated with dead teeth, or a septic alveolar process, the first thing to do is to remove the possible cause of the infection; remove the septic teeth and alveolar process.

The wound is immediately closed with sutures; drainage taking place into the nose by way of the ostium maxillare.

If antral irrigation is necessary a few days after the operation entrance into the cavity is easily affected from the nose or through the operative flap from the mouth.

Upper air passage complications emanating from dental infections should be cared for at a later time.

Dr. R. M. Withycombe, Sydney, Australia.

I should like to report the rapid cure of a case which Dr. MacDonald published in the *Australian Medical Journal* recently, of empyema of the antrum. At my suggestion he introduced a normal salt solution into the antrum, using an electrode which was charged with a Faradic current. In a very short time the whole case cleared up most rapidly. The doctor did not report the result in this case until he was quite convinced that the treatment was effective and was so remarkable in the result obtained. I can only say that owing to my success in treating pyorrhea with electricity by the Faradic current, Dr. MacDonald has adopted my treatment in Melbourne in his practice.

Dr. T. W. Brophy, Chicago, Ill.

The question naturally arises, "What is the condition before us?" It is the diagnosis that first concerns us. If we have an acute infection of the antrum, its treatment is simple, and you can easily enter the antrum with a small spear-shaped drill, opening through the canine fossa. You can then flush the cavity with salt solution and clean it out, and that may be all that is necessary. That is the way I would treat an acute infection of the antrum.

Chronic Empyema of the Antrum.

But if you have a chronic infection of the antrum, which has been going on for months or years, that treatment will not do. In chronic cases there is invariably not only a mass of necrotic tissue; infection with the bone involved from a dento-alveolar abscess, but there will invariably be polypi. In my clinics I have eight or nine of these patients a day. We have adopted a course of treatment that is simple. If we have a chronic case to deal with, we do not cut into the nose. The nose is not involved. Why should we destroy so important a part of the turbinated bone? When God made man he made man right. He created an opening between the nose and the antrum, known as the ostium maxillare, through which communication occurs. Then man comes along and says that was not right; he wants to make an opening so that the nose, as Dr. Cryer has said, will discharge its contents into the antrum, and all dirt and accumulations of the street, and whatever may be floating into the nose will get into the antrum and stay there. I deprecate very much meddling with tissues of the body that are not diseased. I believe that a surgeon should always have in mind the making of an operation which will leave the parts in just as nearly normal anatomical condition as possible, and he never will do it if he cuts out a nose when it is not diseased, in trying to make an opening at a better place than was naturally created, through which communication might take place. The ostium maxillare is the natural aperture and should be kept in mind. If the bones of the nose are normal, let them alone.

Having made an opening of sufficient size, the entire antral cavity may be illuminated, its diseased tissues taken away, the foreign substance removed, and then the opening may be maintained by a properly formed plug of gutta-percha or of hard rubber. Cleanliness is one of the essential steps in the treatment of this disease.

Dr. M. H. Cryer, Philadelphia, Pa.

As there was no discussion on my paper, there is nothing to answer.

I would like to indorse everything that Dr. Brophy has said. Most of the essayists are friends of mine. There are a hundred diseases of the maxillary sinus, and a hundred causes for those diseases. The diseases are produced in various ways, and the antrum must be treated according to the individual conditions.

The first thing in my teaching is to emphasize the importance of finding the cause. I recall one patient who as treated by different doctors for five or six years. That patient baffled me for three months,

and finally I had a radiograph made, and what did I find? I found a rubber tube in the antrum passing into the ostium maxillare. The radiograph showed it. Finally, I opened the antrum in the manner Dr. Brophy has spoken of, inside the mouth, and removed it. The patient recovered.

Let me relate another case of a similar kind that went to several operators. They were going to remove the internal wall; that is, the wall between the nose and antrum. The radiograph showed a black substance. Finally, I found a gold tube that had been inserted and lost for four years.

These two cases I relate as illustrations, and I might mention dozens of others that are similar in nature. Sometimes inspissated matter coming from the frontal sinus will be left in the floor of the antrum. Medicines, such as iodoform, have been used in the form of a solution to wash out the antrum, filling in that great space. I showed you in one of the slides, away below the floor of the nose, a big cake of iodoform packed down to the bottom, which was the cause of the trouble, and it had to be removed.

In closing, let me say the first thing to do when a patient comes to you, whether the trouble is in the abdomen or with the arm, you should find the cause, and as Dr. Garretson used to say, "find it and rub it out, and the patient will get well."

Dr. A. T. Rasmussen, La Crosse, Wis.

I read my paper very rapidly, and it may have escaped some of you that the title of my paper was "Chronic Empyema of the Maxillary Sinus." I did not go into the subject of the acute cases. They are very simple to treat, but it is the chronic cases, the ones that go on for months or for years that give us the trouble.

I would like to speak of a few points that have been made in the discussion. I think it was Dr. Novitsky who asked the question why I use a general anesthetic, and why not use a local anesthetic? In answer to that question I will say that the operation can be successfully performed under local anesthesia. I do many of these operations under local anesthesia. I use a general anesthetic because I like it better, and that is a matter of choice to the operator and his patient.

A number of methods have been advocated here, such as filling the sinus with paste, the Mosetig paste. Another method was the use of the electric current and of normal saline solution. I have not time to go into this phase of the subject thoroughly, but let me ask this question: "If a patient should present with a necrotic condition of the tibia, what would you do?" Would you put that in a normal salt solution and turn on the electric current, or fill it up with a paste of one kind or another, or

would you proceed to make a free opening, and thoroughly curette it, carefully removing the diseased tissue? It is my opinion that is what you would do. That is what I would do, at least, and if so, why is it any different in the maxillary sinus? The different parts are not different from one another as to what they respond to. The underlying principles of surgery or of medicine are the same, whether applied to one part of the body or another.

I am very glad indeed that Dr. Brophy and Dr. Cryer pointed out the absolute importance of finding the cause of the trouble. When a patient presents himself to you or to a physician, you should endeavor to find the original cause of the trouble. That is absolutely essential and important.

Another gentleman who took part in the discussion, said that the method of treatment which I advocated is very tiresome, or it seemed to him that some phrase of the statement would be tiresome. Now, gentlemen, if you will remember my paper, I did not try to present to you an easy method or a quick method. I tried to present to you a method which accomplishes results, and when I undertake an operation of this kind, or any other, it is not a question with me what is the easiest thing to do, nor how quickly I can do the operation; but I consider at all times the interest of the patient. I want the patient to feel that he has been properly treated. The question arises, in my mind, what is the best thing I can do for this or that patient. How can I best operate and leave this patient when I get through in just as nearly the condition in which the Creator made him? That is the thing that always arises in my mind, and that is the reason I proceed to do as I have indicated.

An operation has been advocated here, this morning, which necessitates the breaking down of a large part of the naso-antral wall. The statement has been made that in doing such an operation a flap of mucous membrane from the nasal wall is laid in the floor of the sinus, making the floor of the antrum even with the floor of the nasal cavity.

Keep in mind the slides which were shown by Dr. Cryer in which the floor of the maxillary sinus was much below that of the nasal cavity. The fact is that in most cases the maxillary sinus drops considerably below the level of the nasal cavity. It is therefore a physical impossibility to drain the antrum by this means. On the other hand once that wall is broken down a pocket is formed for keeping all the dust and dirt inhaled and for the accumulation of the secretions which can only escape when they are of sufficient quantity to fill the sinus up to the level of the nasal floor.

Removing the nasal wall with impunity has been advocated on the

ground that this structure has no functions. I believe a very important function of the naso-antral wall is to keep dust and secretions out of the maxillary sinus. Furthermore, in removing any large part of the nasal wall, we also remove a part of the turbinate bone. Both are there for a purpose. Both the naso-antral wall and the turbinate bone have their functions to perform, and once removed they are never replaced. Always keep that in mind when considering the treatment of diseases of the maxillary sinuses.

A Plea Against Tooth Extraction.

Just a word or two with reference to the extraction of teeth. Some of these cases will get well if you extract the offending tooth or teeth. If you should have an infection of the toe, the lesion would get well if you remove the foot, but why remove anything that is not necessary to remove? The Creator gave us teeth for a purpose. We should not remove them unless it is absolutely necessary for us to do so. We remove the ends of the root, cut them off, and remove everything that is involved. There are cases where extraction is absolutely necessary, but often we cut the ends of the roots off as far as they are involved in the abscessed cavity, and you have left good healthy teeth. You have accomplished something, whereas if you unnecessarily remove one or more teeth, you have done the patient an irreparable harm. You have removed a very essential part of the anatomy. You may advise your patient to have bridgework. Is there a man so foolish as to think that a bridge, however well constructed, will begin to compare with natural teeth? I desire to make a plea to the effect that you should not *sacrifice* teeth in any operation. God placed them there for a purpose, and you must not interfere with God's work. Cut off the roots, if necessary, but save the teeth when possible.

Dr. Adolph B. Baer
San Francisco, Cal.

In closing this discussion, I wish to say, gentlemen, that if I agreed with Dr. Brophy's premises in regard to the antrum, I would agree with his conclusions, but I do not agree with his premises.

As Dr. Cryer and Dr. Brophy have said, the most important thing in regard to the treatment of the antrum of Highmore, is to find the cause.

We can divide antral conditions into two classes—the acute and the chronic. The method described by Dr. Brophy, by Dr. Rasmussen and others, for the treatment of acute antral trouble is simple, and it does not make much difference what method you pursue; the condition usually will clear up. It is the chronic cases which do not clear up under simple methods of treatment.

Chronic Empyema of the Antrum.

In regard to the chronic cases, as Dr. Cryer has said, the most important thing is to find the cause of the trouble. A book was published about fifteen months ago, giving the most recent investigations along this line, and no other publication has superseded it. It is the work of Chiari, who reports 12,500 cases, and of this number, twenty-three per cent. of the cases were said to be due to conditions secondary to tooth conditions; sixty-seven per cent. secondary to conditions in the nose; thirteen per cent. to tooth conditions, and seventeen per cent. to nasal conditions of one kind or another.

In regard to the group of cases secondary to tooth infections, everything Dr. Brophy and Dr. Cryer have said is true. The most important thing is to remove the tooth or teeth, or as Dr. Rasmussen has said, remove the roots of the teeth; get rid of the cause, and you will get rid of the condition. The method of Kuster, in 1890, of going through the canine fossa is the proper method of treating the condition. Where you have involvement of the antrum, in twenty-six per cent. of the cases which come for treatment, they may be treated by the method which has been described by Dr. Brophy. However, in the remaining sixty-seven per cent., where there is no infection whatever in the floor of the antrum, where the teeth are not involved, and the condition is secondary to a nasal condition, I disagree with Dr. Novitsky when he says that it is unnecessary to first cure the nasal condition. What Dr. Novitsky said in regard to curing the tooth condition and the nasal condition as a cause is quite correct. First, cure the tooth condition, because we get rid of the simplest part of it, but where we have both a combined tooth and nasal cause, or antral suppuration, it is necessary to find out what particular part has caused the condition.

There are four sinuses, the frontal, antral, ethmoidal and the posterior ethmoidal. The most common diseases are those which involve the anterior ethmoidal and frontal sinuses. Very rarely are the other sinuses involved. It is only in exceptional instances that they are implicated, and so we simply have to consider the frontal and ethmoidal sinuses. Granted that the condition of the frontal and ethmoidal sinuses is cleared up, if there is a chronic suppuration in the antrum secondary to an ethmoidal sinus condition, it is absolutely impossible to get rid of it without making an opening into the nose. The floor of the antrum is lower than the nasal floor, as a rule. The two are never on a straight line. I do not remember the exact percentage of cases in which this has been shown, so I will not say anything about it, but invariably the floor of the antrum comes down lower than the floor of the nose. The particular slide shown and described by Dr. Cryer is a great exception.

Dr. Brophy. Do you men that the floor of the antrum is lower than the floor of the nose?

Dr. Baer. Yes, but in the case of which a slide was shown by Dr. Cryer, we have an exception. I have not seen a case which shows the antrum so low as that.

With reference to the Denker operation, it consists in making an opening through the canine fossa, as described by Dr. Rasmussen, and the second part of the operation consists in removing this portion of the inferior meatus of the nose. So far as I know, that is functionless. I do not know of any function which the inferior cavity has. The statement was not made that the antrum and nasal cavity are on the same level. The statement was made that the entire partition separating the nose from the antrum was to be lowered at this point, so that we have one continuous line along the floor of the antrum and nose; the mucous membrane which extends up in this position (indicating) which has been separated from the bone before its removal can be turned down upon the floor of the antrum. A flap of mucous membrane is made and turned down, so that we have one continuous line along the floor of the antrum and of the nose, not necessarily a straight line or a perpendicular line, but a continuous line.

In my paper no attempt was made to discuss the cause or causes of antral sinus conditions. Having removed these two causes, we are dealing with the antrum itself, and operating according to the method of Denker. We get rid of the infection in the antrum, and there is no further suppuration.

Dr. Rasmussen. May I ask you a question? The percentage as given by some man in Vienna—I think he said Chiari—has twenty-three, in which the trouble is due to conditions secondary to the teeth. I would like to know if that man is in a position to recognize a diseased tooth or teeth when he sees them?

Dr Baer. Chiari at the present time is a man, I should judge, nearly seventy years of age. He is looked upon all over Europe as one of the foremost living authorities in this subject. In his clinic he sees 250 cases a day or 36,000 case a year. He does not do any active work at present, but supervises the examination of the cases and collects the various data which are made upon the cases which he examines. I cannot answer the question definitely because I do not know whether he is able to make a correct examination or not. However, I should think a man of that type would be able to make such an examination.

Dr. Rasmussen. I asked the question as a matter of information, for the reason that there are so many who are not dentists, who are not in a position to recognize a diseased tooth when they see it, and there are many men who are dentists who are not able to determine whether the trouble is in the frontal sinus, and therefore we have a great variance of opinion.

Dr. Baer. I think the average specialist, so-called, is never practically able to recognize the presence of a dead tooth when it is the cause of antral suppuration. That statement can be made almost positively. When a man like Chiari starts out beforehand to determine what the cause of the condition is, I should say, and would be inclined to think, he would discover the cause of the trouble.

Dr. T. W. Brophy. It occurs to me that no matter whether the infection has its origin in the frontal sinus or the ethmoid cells, or the sphenoidal sinus, all these tissues have become involved, and here is a proposition that is not widely known, and the discovery was made by Dr. Cryer and verified by Curtiss, and Curtiss makes a positive statement regarding it. Dr. Cryer pointed out that there is a direct communication between the frontal sinus and the antrum in many cases when he first made his report. He did not say how many. Curtiss declares that the frontal sinus has communications directly with the antrum in fifty per cent. of all the cases, and not, as was generally supposed prior to that time, and is still believed by many, a direct communication with the infundibulum in the majority of cases. Dr. Cryer has pointed this out very clearly. He has pictures which will show a probe extending from the frontal sinus into the antrum. Whatever the cause of the disease may be, whether it originates within the nose or in the different sinuses outside of the antrum, the antrum becomes involved through communication of these membranes through the *ostium maxillare,* and then becomes infected, but that does not seem to me to call for the destruction of this piece of bone and the making of the antrum and nose one cavity. I would insist that that be not cut out, and while it may not seem to have any special function, I think it has an important function. It has the function of preventing the ingress of foreign substances into the antrum.

Dr. Baer spoke of Kuster making an opening through the canine fossa. This operation was made and described by Dr. Gilmer, of Chicago, in 1886, and published in papers read by him. That was the date, I think. Dr. Gilmer ante-dated Kuster at least four years.

Dr. M. H. Cryer, Philadelphia, Pa.

May I just say a word or two in regard to the photographs I have shown? The specimens from which these were made will be found in the museum. I have over a hundred slides in the museum pertaining to the maxillary sinus. Many of these slides show the causes of diseases. I make this announcement, so that if any of you would like to look over them they are there.

On motion, which was duly seconded, the subject was passed.

On motion, the Section then adjourned.

September Fourth.

The Section was called to order by the Chairman at 9:30 A. M.

The following papers were read by title and ordered published in the official proceedings:

"A Compound Cementonra,"* by Dr. Benjamin Goldstein, Johannesburg, South Africa.

"Etiology and Treatment of Oral Tumors,"** by Dr. Fulton Risdon, Toronto, Canada.

Dr. Harry M. Sherman, San Francisco, Cal., read a paper entitled, "Surgical Treatment of Trigeminal Neuralgia."***

Discussion of Dr. Sherman's Paper.

The Chairman.

We all deeply appreciate Dr. Sherman's paper, and I shall ask Prof. Cryer to open the discussion.

Dr. M. H. Cryer, Philadelphia, Pa.

In regard to alcoholic injections, I have not been successful with them, neither in my own practice nor in the observation of others. Dr. Sherman mentioned in his paper that Dr. Keen had almost abandoned alcoholic injections, except for temporary relief.

As far as infra-cranial operations are concerned, I have seen most successful operations produce permanet relief. The case of Dr. W. W. Keen, which has been reported, was operated on in October, 1893. The operation was performed on a man by the name of Jesse Krusen, a dentist. The operation previous to that time was done by mallet and chisel in opening into the brain cases, requiring such experts as Dr. Keen, the operation consuming from thirty-five to forty minutes. In this case of the dentist, a surgical engine, somewhat after the Durier engine with circular saw, was used to cut the external plate. Dr. Keen was afraid of cutting

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* See Vol. I. Page 439.

**See Vol. I. Page 441.

***See Vol. I. Page 446.

the dura-mater with the saw, as there was no guard upon it. The skull varies in the thickness in the region of the temporal bone, so that he had the external plate cut, and by mallet and chisel he cracked the internal plate or vitreous plate, and got a fairly good opening, but in doing so the meningeal artery was severed by the chisel, and of course, there was a tremendous hemorrhage. The wound had to be packed and allowed to remain for three days, when he again proceeded with the operation. As I recall, Dr. Keen removed the entire ganglion, except along the upper horn from which the ophthalmic division passes to the eye. That patient had previously been operated on fourteen times for facial neuralgia without success. The patient recovered quickly and is living to-day. He is an assistant at the present time at the Blockley Hospital. He has occasional pain in the frontal region, showing to my mind that all of the ganglion was not removed. I would like to speak further on that operation, showing the dangers of using the circular saw.

The Spiral Osteotome.

A device has been made, known as the spiral osteotome, where you may say in a rough way a fissure drill is used on a powerful engine, working as a pinion in a guard. The opening is made five-sixteenths of an inch on two places of a brain case, and by pushing the dura down away from the bone this instrument is inserted and at the point in front of the osteotome the tissue is dissected away, and instead of taking thirty minutes I have seen Dr. Frazier, in dozens of cases, open the brain in from three to four minutes. It is the instrument he uses constantly in opening brains, not only for the Gasserian ganglion, but for tumors of the brain. I have seen almost one-third of the cranium removed, and as Dr. Sherman has said, the patient would be up in three or four days. It is my opinion that for deep-seated facial neuralgia, often called major neuralgia, the removal of the Gasserian ganglion is the proper procedure.

Dr. Chas. H. Oakman, Detroit, Mich.

In operating on the Gasserian ganglion, which I think is the only procedure in some cases, it is a major operation, and in the hands of such men as Cushing the operation is a great success. He has operated on one hundred and fifty-four cases with practically no deaths. I think possibly not over three, but in the hands of the average surgeon who possibly will do a Gasserian operation once in a year, or once in several years, the matter is different. I do not think it is a wise thing always to send patients to have an operation of that kind done, unless the surgeon has had more or less experience in this work. If any of you should go into the Gasserian ganglion on the cadaver, you will find it is not an easy

matter, but I do really believe it is more difficult to find in the cadaver than in the live subject, as many other tissues have demonstrated that to us. I can best illustrate my view of this subject by relating one or two cases.

Case Histories. Case I.

A woman, about thirty-five years of age, a cook by occupation, had suffered for seven years with trifacial neuralgia. She was about to go to the hospital and have an external incision made for the removal of the inferior dental nerve, and possibly something more. However, she fell into my hands. She had an edentulous jaw, and sterilizing the parts as well as we could and treating them with iodin, an injection was made in the region of the inferior dental nerve, the tissues retracted, and the nerve drawn up, Then by the use of a fine needle, cocain, alcohol and chloreton was injected into the substance of the nerve. The operation was done under local anesthesia. That being done, a fine cat-gut ligature was tied down near the end of the needle before the needle was withdrawn and the ligature drawn tight. I was able to do a partial neurectomy, and remove the dental nerve from the foramen into the chin. Luckily, the tissues were easy to separate, and by using the handle of the knife the roots of the nerve were removed. That operation helped her a great deal After the wound had healed, she was free from pain altogether. This case was operated on eight years ago. I saw the patient about a year and a half ago. She had been free from pain up to that time. She had lost thirty pounds in weight before I saw her. I presented her at one of my clinics and she skipped around like a young girl, but the day she walked into my office before the operation she moved around like an old woman.

Case II.

My next patient was a Polish gentleman whose brother died of tic doloureaux. He undoubtedly had neuralgia in both branches of the nerve. I did the same operation on this man as I did on the woman, and he was absolutely relieved. I did both operations at the same sitting in my office. I usually give my patients fifteen grains of chloreton, sometimes twenty, followed by a hot drink. You can feed a dog chloreton and cut him up freely without much inconvenience to the animal. I wish you would try it some time if you have not already done it. It acts better than morphine, for the reason that it is a hypnotic and a local anesthetic.

This man felt as though his time was short in this world after having seen his brother die of the same disease. I cannot understand how surgeons let him die from the condition. This man was operated on and went to work in a laundry at one of our large hotels. I showed him at

my clinics for the purpose of pointing out that the operation is a success. He went over two years without pain.

I cannot take the same view as Dr. Sherman does, he being a general surgeon. I see a great many of these cases, but I must say I fear to go into the Gasserian ganglion and remove these roots, because I have observed so many of these patients die. I have seen them die quite regularly when it has been done, because the surgeons who did it had not done enough of this work to become expert at it. Dr. Cryer has told us that he has seen it successfully done, and no doubt it can be done by an expert, but I would not care to send a member of my family to a surgeon who only removes the Gasserian ganglion occasionally.

Dr. Jos. Novitsky, San Francisco, Cal.

Perhaps some case histories will be opportune at this time, and in this connection I desire to relate an interesting case. Some years ago I was called in consultation with numerous medical men to see a case of extreme cranial neuralgia. The patient had Bell's palsy on one side of the face. There was grave question as to whether this condition was of central origin, whether is was of mastoid origin due to the facial complication, or whether, as in my estimation, it was due to inferior dental irritation. I believe in many of these cases where the Gasserian ganglion is removed that there is a strong possibility, if the true cause or origin of the trouble were looked into, that it would be frequently found in the alveolar process due to a septic inflammation causing much thickening. I had great difficulty in convincing this man that there were abnormalities in his jaw. The radiographs did not show very much. They showed considerable thickening of the cancellous structure. There were three dead teeth, absolutely ankylosed in their sockets. I advised the removal of these dead teeth as a preliminary measure. This was followed by no improvement. Subsequently the mandible and the inferior dental canal were opened up. The contents of the canal were found gangrenous. The neuralgia and the Bell's palsy cleared up. This patient was told that if he did not have a mastoid operation immedately he would die. Another surgeon wanted to open the brain. In many of these cases, and I have had several of them, I have found that the nerve irritation is due to thickening of the alveolar process and if I may be permitted to do so, I would suggest that it would be well to look for these cases before undertaking a radical operation, for the removal of the Gasserian ganglion. The thought has entered my head that perhaps the sinuses of the upper air passages may also be frequently involved, due to a septic thickening. We not infrequently see the antrum with a thick floor due to chronic suppuration resulting from septic teeth. Of course, if we find this in

the antrum we can well expect to find the same condition in the sinuses of the upper air passages which would involve the nerve terminals and cause severe pain.

Dr. Robert Burns, Jr., San Francisco, Cal.

I want to say a few words from a dental point of view, because I think this is one of the subjects wherein the general practitioner of surgery and the dentist should come very much closer in relation than they do. A tendency is growing in that direction, I know, but so many times we see in our offices patients who attribute "neuralgia," as they call it, always to some particular tooth, and I have known cases where an entire denture has been removed without causing a particle of relief. That may be true in some cases. I realize fully that neuralgia is one of the most difficult things in the world to reach the cause of, and in every instance the cause is the prime thing to find. That is axiomatic. I want to take up your time for a minute or two, to relate possibly two causes. Clinical experience is of value.

Case History.

The first patient was a man seventy-two years of age. For twenty-one years he had worn various dental appliances; on the left bicuspids, two gold crowns, on the right lateral, a porcelain crown; extending from the cuspid back to the molar was a bridge, this bridge was the cause of his coming to me. He wanted the bridge replaced, as it had become loose. I saw this molar was gone hopelessly, and told him the only thing to do was to remove the bridge and extract the tooth. He had no posterior teeth beyond those I have mentioned. I was not aware that he had said anything about neuralgia, but it so happened that when he was in my chair a paroxysm of neuralgia overcame him for twenty minutes, during which he suffered intensely. I said to him, "For Heaven's sake, have you not done anything for these attacks?" He replied that for twenty years he had suffered from neuralgia and had done everything possible for its relief. He said he had undergone three different operations. In addition to these operations, he had osmic acid and alcohol injections, and from these he had obtained only temporary relief. I suggested to him that possibly his teeth might be at fault, but he replied that he had a lovely set of teeth and was rather proud of them. I examined them very carefully, and in so far as an ordinary examination is given by men in dentistry is concerned, there was nothing indicative of trouble, with the exception, that by strong pressure over the left bicuspid, I could get a drop of pus. It was hardly distinguishable macroscopically, and I did not know whether it was pus or soft detritus of the mouth. I said to him, "Now, you must have a partial upper plate at all events, or a full upper plate, and get these teeth taken

out." He did. From the time the post-operative pains incident to the extraction of the teeth had passed he had not had a return of the pain for three months. I saw him yesterday and he told me he has had absolutely no neuralgia. That is just the point I want to impress, not upon the surgeons here, because they know it, but upon the dentists, and let them take pictures of these cases when they come under their observation, and try to find the cause of the neuralgia, or of any pathological condition, whatever it may be. I thank you very much indeed.

Dr. H. M. Sherman, San Francisco, Cal.

I am delighted that my little paper has brought out such a fine discussion. In regard to Dr. Cryer's comments upon our opening the skull, sometimes it has been rather a tedious thing to do. I have always preferred to do it with a chisel. The neurologist with whom I do most of my skull work is a man who has an aversion to chisels. He thinks it is too likely to cause much unnecessary disturbance, and I have to cater to his predilections and resorts to other methods. The two-handed bone forceps devised by Hodgson, of Atlanta, Ga., is quick and satisfactory, and it does not hurt the dura. As I have said, personally, I prefer the use of the chisel.

Dr. Oakman spoke of the method he employs in injecting the nerve, and then drawing it out, making the injection first, and the neurectomy afterwards. Of course, a neurectomy would add to the efficiency of the injection, but the injection will stop the pain, and under these circumstances a neurectomy would not be absolutely necessary. Of course, after the injection, where we expect a return of the pain, if a neurectomy is done, the return of the pain might be postponed. I did not put this in my paper, because it seemed to be going too far in the time at my disposal. Even after intra-cranial operations there have been noted nerve regenerations, not if you go behind the ganglion, but if you stay in front of it. The removal of a large part of the nerve would not prevent a recurrence of pain after a certain time. Chemical or mechanical destruction is what we are aiming at, and chemical destruction, plus mechanical destruction may be of some added value. I urge that the patient must be conscious. Those people who have been injected watch while we do the second or third injection. They exclaim. "Hold on, now you have got it." They know exactly when the injection has reached the right point, and in the technique that is usually employed if the nerve is found, or after it is found, there is some pain complained of by the patient in the nerve distribution area, or the patient has said because of his past experience, "You have got the nerve" then, a little cocain is put in and you

look for anesthesia in the nerve distribution area, and the patient even tells you you have got the point of the needle in the nerve, and you infiltrate with alcohol and cocain, and expect anesthesia in the nerve distribution area, so that the consciousness of the patient is essential, it seem to me.

I was much interested in the remarks of the gentlemen whose name I cannot recall, but who spoke of facial paralysis in conjunction with a fifth nerve neuralgia. In the first operation that I ever did for the removal of the ganglion, I was rather shocked the following morning to find that my patient had complete facial paralysis on the side of the operation. I rushed to consult my anatomy to discover what I could have done in the way of injury to the seventh nerve. I never could find out why it was that this man had facial paralysis in conjunction with my operation but after many years Dr. Miles F. Porter, Fort Wayne, Ind., had a similar experience, and was similarly stumped to explain it. Wilford Harris, of London, Eng., in writing of injections of the ganglion with alcohol speaks of the occurrence of facial paralysis in connection with that operation, and he goes into some very careful considerations of inter-nerve anastomoses, the possibility of the alcohol having passed further along underneath the dura mater than was expected, or got into the motor facial nerve, and caused its paralysis. But it is quite difficult to say how it can occur.

Dr. Novitsky. Where was the injection made?

Dr. Sherman. The injection was made in the foramen ovale and passed back into the ganglion by infiltration. The nerve was injected on the cadaver with methylene blue solution, but in the case which you (Dr. Novitsky) reported the paralysis of the facial nerve is apparently inexplicable. The neuralgia can be explained by the conditions you described as existing in the alveolar process, but how there could have been an extension of the neuralgia to the motor nerve, is a difficult thing to understand.

Dr. J. Novitsky
San Francisco, Cal. I decided that in this case the neuralgia was due to sepsis in the mandible because the patient had relief from pain following the injecting of Novocain into the trunk of the inferior dental nerve before it entered the mandible. The pain returning at the end of the anesthesia.

In many injections to anesthetize the inferior dental nerve, facal filaments are seen to be involved in the anesthesia. There is some nerve connection between the facial and the inferior dental nerve that does not appear to be plainly brought out in anatomical text. I have also noted that in some cases sensation returns to the lip after the complete re-

moval of the inferior dental nerve. This would indicate a nerve supply that has not been definitely mentioned in the text.*

The patient who experience sensation in the lip following these operations state that the tacticle sense is much slower on the operated side than the response on the sound side. Röntgen ray study of the mandible indicates absence of the inferior dental canal on the operated side.

Dr. Brophy. You may get that sensation from the sympathetic system.

Dr. Novitsky. There is no doubt in my mind that many of these cases of Bell's palsy, where the patient is paralyzed on one side of the face after exposure to cold is due to a septic jaw; that is to say, there is a lowering of vital resistance by the sepsis, and when they are exposed to cold they get this paralysis. Then the question arises, where does it emanate from? Is it a septic condition of the mastoid, from exposure to cold, or is it the jaw which is at fault? I believe if we were to look into the etiology of these cases we would find it associated with many dead septic teeth.

Dr. H. M. Sherman, San Francisco. I wish to thank Dr. Novitsky very much indeed for the remarks he has made. I have learned something very definite. I think his observations on facial paralysis, where we have been anesthetizing the inferior dental nerve are most illuminating because they support the theory that paralysis of the facial nerve in septic cases is usually due to toxic diffusion from the posterior dental foramen. That and his report of having cured facial trigeminal neuralgia by extraction of teeth are most interesting. My shot in the dark, suggesting that trigeminal neuralgia should be studied from the standpoint of the dentist, or from the teeth, has already borne fruit. I did not know it would do so so soon, but I think we must go slowly and carefully. I, myself, find I am being criticised in San Francisco, because I am looking all the while for bad teeth. and I am laughed at because I happen to have a laryngeal mirror and an equipment for this service, and I go to work and look at the teeth in a surgical fashion; if I am in doubt I send these patients off to be radiographed and sometimes I find I am barking up the wrong tree. We have to look for mouth infection in a general survey of the individual to explain a joint or pain condition, and when we can find this in the mouth it is more easily gotten at and remedied. But we must be careful not to put everything down to errors in the mouth. You who are studying the same sub-

*This nerve supply has recently been worked out in the Surgical Pathological Laboratories of Leland Stanford, Jr., University. Dr. Novitzky will make a report on this some time in the near future.

ject from another angle must keep in mind a corrective thought because we have all seen mouths that were filthy, without producing a single symptom in the way of secondary difficulty or trouble. I saw one case recently of a man with epithelioma of the lip, and I would not have dared to put my finger in his mouth without a glove because it was so dirty; yet he had no symptoms referable to any septic or toxic condition or absorption.

Some of our cases have never been studied carefully from a dental standpoint, and more attention should be paid to this phase of the subject than has been done in the past. I wish to thank you for the opportunity of appearing before this Section and addressing you.

Dr. Howard R. Raper, Indianapolis, Ind., read a paper entitled "The X-rays in Oral Surgery."*

Discussion of Dr. Raper's Paper.

Dr. H. M. Sherman, San Francisco.

May I venture, Mr. Chairman, to say a word or two on this paper. The emphasis was laid upon the things that were not found and the value of that was perfectly correct. I agree with it thoroughly. Those people who go out of my office after having been told there is nothing the matter with them are very happy people, much happier than if there was something that was serious. In my office I keep a radiographic outfit for office work, not for elaborate radiography, but for small matters. It not only clears up things which can be cleared in that way, but many times find something which never would have been found otherwise. Only the other day I found an impacted fracture of the neck of the radius in a five-year-old child. Just think of it—an impacted fracture of the neck of the radius in a five-year-old child was shown by the radiograph. It is my custom to apply the rule that when you do not need a radiograph then is the time to take it. So when you dentists think there is nothing in the world that any radiograph can show you regarding a certain condition of the jaw, or of the teeth, that is exactly the time when you want to take it, otherwise some other fellow will have it taken, and he will find what you missed.

Dr. Charles H. Oakman, Detroit, Mich.

I think what Dr. Sherman has said is correct. About four weeks ago a man came into my office with a fracture of the jaw at the ramus and at the mental foramen on the right side as well. He had been to several dentists and several physicians, but all of them failed to

* See Vol. I. Page 451.

diagnose his condition. His jaws could not be very well opened, and he was sufferng great pain. There was not one out of the five or six physicians and dentists who saw him who advised that a radiograph be taken. About six weeks ago, when we tried to get his jaw in position, we could not do it, the posterior fracture was so elevated and sepsis had set in; it was a compound fracture, by the way, and he had a very foul mouth. A radiograph was taken, and that was about fourteen days after the injury, if I remember correctly, and there was no need of trying to put the fragments in apposition. Nothing could be done in the mouth, because he had only one tooth on that side. An external incision was made, the periosteum was raised from the bone, and the jaw had to be resected at the articulation. Think of this condition, due to the neglect of taking a radiograph early in the case. A radiograph taken early would have shown the surgeon or dentist, during the first few days, that a fracture existed.

Dr. Raper.

Dr. Cryer has done considerable stereoscopic work, and I want him to state whether I am right or wrong in the main, regarding my attitude towards stereoscopic work.

Dr. M. H. Cryer, Philadelphia.

I have done some stereoscopic work in connection with X-ray pictures. When Dr. Custer, of Ohio, gave a lecture on X-ray work in Philadelphia, in 1900, I was called upon to discuss his paper. I happened to have an excavator in my hand, and remarked at the time that I would not give that excavator for any radiograph in diagnosing an impacted tooth. We have radiographs which will diagnose the position of impacted third molars, or any other impacted tooth.

I want to speak to another point. Dr. Raper said that you can use the X-ray to prove whether there is anything in the antrum or not, but it would not locate it. If you take a picture of the antrum laterally you will get the direction of that object in the antrum in one line; if you take an antero-posterior picture of that same antrum, you will get it in the other line, and where these two lines cross is your object.

In regard to stereoscopic pictures, I believe they are of great use. I make them myself and find them useful. Dr. Pancoast to-day is making beautiful stereoscopic X-ray pictures of the face, but in days to come I expect to see them improved upon and expect you to improve on them so that they will become very useful to the dental profession.

Dr. W. J. Taylor, Sacramento, Cal.

I have followed the literature in the various articles that have been published in the dental journals and they leave the enthusiast and individual who might want to take up this work, very much in the

dark as to the proper method of procedure. The literature fails to give us any information as to the sort of apparatus to secure to obtain the best results. It also fails to tell you whether it would be more advisable for the operator to take his own pictures or to have them taken by an expert; and also as to whether, of course, the injuries to the patient from the use of the X-ray and to the operator has been reduced to a minimum. I believe recently it has been demonstrated, and I think I have heard it so stated at this Congress, that the effects or the injury to both patient and operator have been reduced to a minimum. Now, Dr. Raper has had considerable experience in this field of work and is an expert on that line. I presume that his book deals with this subject very thoroughly, and no doubt it is a book we should have and read carefully, and at the same time, while the discussion is on, I would like to ask the Doctor to take a few minutes in closing the discussion to enlighten us upon the subjects to which I have referred.

Dr. Howard R. Raper.
Indianapolis, Ind.
(Closing.)

I will occupy only a minute or two of your time The first thing I want to mention is a rule for making radiographs. Take radiographs when you think it is unnecessary. That is an unusual rule, but a good one. The last case I saw before leaving home was that of a woman who had had neuralgia for about two years. All of her upper teeth had been removed from the cuspid back. The extracting specialist who had referred the case to me had the case sent to him first for the purpose above noted. He said it was hardly necessary to make a radiograph of the upper jaw. We made a radiograph, however, and found some pieces of tooth root still in the bone. These pieces usually work themselves to the surface, but did not do so in this case. We almost failed to make a radiograph of the part, but when we did we possibly found the cause of the woman's trouble; further history of the case will determine this.

A busy man in the city who has access to a specialist, I believe, should send his cases to him. A man in the city who has not a practice large enough to keep him busy may just as well be busy at something. So why not take up the work himself? He can do it. Anybody with ordinary ability can do it. The suburban, or small town dentist must do it whether he wants to or not.

With reference to self-education to make one's self proficient in this work, my book, "Elementary Dental Radiography," will help, I hope.

Answering Dr. Cryer, he is perfectly right in what he said about locating foreign bodies in the antrum.

With reference to being able to produce stereoscopic radiographs which will help materially, I think it can be done, but it cannot be done for John Smith, the laborer. It can be done for the man who hires that laborer possibly, but I do not see how it can be simplified so that it will be of use to the people at large. I thank you very much.

Dr. Charles H. Oakman, of Detroit, Mich., read a paper entitled "Cleft Palate,"* which was illustrated by numerous stereopticon slides.

Discussion of Dr. Oakman's Paper.

Dr. J. Novitsky, San Francisco.

I would like to know if this cleft palate operation has ever been undertaken under local anesthesia, that is, blocking with novocain and using cocain in the nostrils? What objection would there be to this procedure? I have never seen it done myself, but I can imagine it might be successful. It would more or less control the patient; the reflexes would be abolished by the cocain, and as a matter of information for myself, I would like to know what you gentlemen think of it.

Dr. H. M. Sherman, San Francisco.

With regard to the age at which I prefer to perform this operation, I do not like to operate until the child is fifteen pounds in weight. I like to do the lip operation at three months, because there is better hold for the sutures in the tissues. I like to do the palate operation before the child has teeth, because the teeth bring mouth sepsis, and mouth sepsis is what spoils union. I have a very large percentage of cases in which I have obtained satisfactory and complete union. If I wait until the child has teeth, my success is not so great.

I have been surprised to find that some men have mortality. Joseph Rilus Eastman, of Indianapolis, speaks of having quite a high mortality. I have never had a child die from a cleft palate operation. It is true, I operate on a relatively small number of children.

I have used a device which has the effect of narrowing the cleft, particularly unilateral complete clefts, where there is considerable separation of the maxilla, which is made greater by the upward pressure of the mandible.

I put an ordinary hook, such as is used in hooks and eyes, in a piece of adhesive plaster, and attach one such piece on either cheek. A little bit of elastic bent over the hooks will draw the cheeks together, and I press forward and backward the intermaxillary bones so that they approach one another. You can use these little elastic bands to move the jaws around, shift the teeth, and do almost anything you please.

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*See Vol. I. Page 474.

These bands can be put on by a nurse, or the mother can keep them in operation. When the cleft is closed, repair the lip and hold it. By and by I repair the cleft in the palate. That is a method of treatment which I think is truly good.

As regards the anesthetic, I like to stitch the tube into the nostril and the air pumped through a bottle of ether carries the anesthetic in. The reason I stitch the tube is because it is likely to slip. Do not stitch it to the ala but to the septum; then you have it fixed in place and you do not have to bother with it. That is a great comfort.

I have not used the intravenous method, and I should like to know more of it to try it.

As to the septum, when you have resected a part of it so as to push in the projecting intermaxilla, does the septum unite? I have never been able to make it do so.

Dr. C. W. Brophy, Chicago, Ill.

I have listened with a great deal of interest to the able address delivered by Dr. Oakman. The principles which he has so clearly defined will endure. The large experience of Dr. Oakman in palate surgery makes his writings of inestimable value to those interested in this work.

Harelip.

Harelip, when accompanied by cleft palate, is one of the greatest deformities known. It is generally so recognized. And yet it is one of the most neglected in medical teachings. Consequently, it is the least understood and the most unsatisfactorily managed of all conditions requiring surgical treatment.

The graduates of the greatest and most famous medical colleges, among whom are internes who rank as the most thoroughly educated young men in medicine, inform me that they had had no instruction in this subject. When these young doctors are called upon to operate upon these deformed children, whose fault is it that their operations are failures? I have no doubt they do the best they can, but they are undertaking operations of which they possess little or no knowledge. They would have learned had their medical teachers given them an opportunity.

Nearly all cleft palates possess an abundance of tissue to form a perfect palate, but it is separated. It is cleft. These separated bones should be moved into proximity, their edges freshened, and they should be firmly fixed and immobilized, while the child is very young. At birth, nearly one-half of the bone is organic matter and may be easily bent and moved into its proper place.

Cleft Palate.

Cleft palate, with single harelip, usually extends through the alveolar process, leaving the premaxillary bones attached to one side. In most of such clefts the fissure is on the left side. The right side of the bone, therefore, being longer, extends forward, and the nose is diverted to the right side. The nose is not in the center of the face. The thumb, placed upon this protruding bone will press it down so that it will easily approximate with the bone of the opposite side—the short bone. The bony arch of the palate will thus be formed; the nose will be in the center of the face; and the deformity, to a very great extent, will be removed.

The edges of the bone are freshened so that cancellated bone meets cancellated bone and the segments are firmly wired and held in place until they unite.

I am sure a surgeon would never expect to get union in case of ununited fracture by "watchful waiting"; and yet it seems that such is the policy oftentimes employed in the management of cleft palate. Bone, in an ununited fracture, will not unite of itself, and measures must be adopted to prepare it for union and to immobilize the fragments. Fractures, either recent or ununited, are never successfully treated by operating on the soft parts and making flaps. Neither is cleft palate successfully treated by such a procedure. In case of fracture, recent or ununited, the surgeon would place the fragments in proper position; he should use care that the edges of the bones he proposes to unite were freshened; that there be no intervening membrane or soft parts to prevent union; and then he should immobilize them. Membranes are often reflected into joints, in case of ankylosis, for the purpose of establishing mobility; so, membranes between the ends of broken bones will prevent union and mobility will continue.

Whoever closes the lip and conceals the greater deformity, the separated palate, leaves the bones to be ununited through life. The deformity will remain.

Treatment of Premaxillary Bones.

The premaxillary bones stand out prominently, in many cases, to a point beyond the end of the nose. It is, indeed, a remarkable conclusion sometimes reached, that these bones which have such important functions—to preserve normal contour and expression and to give symmetry and beauty to the face—should be excised and a deformity established almost as great as that which previously existed. The deformity following excision of the premaxillary bones cannot, by any possible means, be wholly corrected. The time has passed when surgeons can say that the removal of these bones is

necessary in order to enable them to close the lip. The patient who is thus treated is deformed for life. These protruding premaxillary bones should be placed where they belong, in the maxillary arch, their surfaces freshened, and they should then be immobilized in the same manner that any broken bone is treated.

A maxim which will endure, is: "Every surgical operation should be so made as to leave the parts in just as nearly a normal anatomical condition as possible."

A palate never can be normal unless the bones are united. The bones should first be united; then the lip closed and the nose placed in its normal position; and finally, the soft palate should be closed, so that the patient, when becoming old enough to speak, will speak distinctly.

The object of the operation is not only to overcome the visible deformity, but to insure correct phonation. I know from an experience of thirty-five years in this work that children upon whom I have operated grow up to be men and women whose deformity, which they had at birth, was so perfectly overcome by correct surgical methods that it is not recognized.

Mortality After Operation for Cleft Palate.

The question of mortality, so often mentioned by those not familiar with this work, has been exaggerated. I know of no operation more uniformly successful and attended with fewer fatalities than the operation of moving the separated bones together and immobilizing them. I do not think any surgeon of experience would be willing to assert that the treatment of an ununited fracture would be especially hazardous to life. He should use the same course of reasoning and reach the same logical conclusion in moving together the separated bones in the case of cleft palate.

Dr. Chas. H. Oakman, (Closing.)

I trust you will appreciate the fact that I did not read all of my paper. I cut it short to give you the lantern slides. I did not allude to the early operation, that is, doing the palate first and then the lip, but I think much depends upon the condition of the child. If the child is in a good physical condition you can operate early. If not, you can expect bad results if you do operate.

Nerve blocking in these cases I have never tried. I am fond of local anesthesia; I have never tried it in the palate operation. I have often thought I would do it in the small repairs, or for button-holes left in the palate, but as a rule you can never tell when you start to fix up a little repair what you may be required to do. It will sometimes be equivalent to a major operation before you are through. There are several things

in the paper that might be spoken of, but I shall not allude to them because the hour is getting late.

I did not say anything about lateral incisions. Many operators, in order to simplify the operation and to save time, use such incisions, but I do not think time should be a factor in the performance of a surgical operation, provided you can get better results by taking a little more time. Our backs and conveniences should not be considered, provided we can do a better operation. We do know that lateral incisions will cause a thick palate. We know that you get a short palate and if you get a short and thick palate combined you get improper phonation. If you unite the two clefts of a palate and then do not get a proper phonation, your operation is practically a failure, because what the patient wants, what the friends want, is to have that child talk properly. What is the use of doing a cleft palate operation unless we can promise a great degree of proper phonation? Outside of the cosmetic effect of the lip, phonation is what we should always strive for, and as Dr. Brophy has often said and says it in his new book, the success of the operaton depends on proper phonation.

The following papers were read by title, and ordered published in the official proceedings:

"Osteoplastic Lengthening of the Lower Jaw in Micrognathy According to Von Eiselberg's Methods,"* by Dr. Hjalmer von Bornsdorff, Helsingsfors, Finland.

"Shot Fractures of Jaw Bones,"** by Prof. Rudolph Weiser, Vienna, Austria.

"The Treatment of Radicular and Follicular Dental Cysts,"*** by Professor Rudolph Weiser, Vienna, Austria.

"Nerve Blocking,"**** by Dr. Bion R. East, Detroit, Mich.

"Radium in the Treatment of Cancer of the Mouth,"***** by Dr. Oscar H. Strauss, Milwaukee, Wis.

"A Case of Acromegaly,"****** by Dr. Pehr Gadd, Helsingfors, Finland.

Adjournment.

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* See Vol. I. Page 457.
**See Vol. I. Page 463.
***See Vol. I. Page 466.
****See Vol. I. Page 514.
*****See Vol. I. Page 489.
******See Vol. I. Page 493.

Discussion of Papers Presented in Section VII.

Orthodontia

Section VII.

Orthodontia.

Chairman: Dr. J. Lowe Young, New York.
Vice-Chairman: Dr. Robert Dunn, San Francisco, Cal.
Secretary: Dr. James D. McCoy, Los Angeles, Cal.

September Second.

The meeting will come to order. I regret exceedingly to announce that our Chairman, Dr. J. Lowe Young, of New York, is unable to be with us. As Vice-Chairman, I will therefore read his address. Before proceeding to the address I wish to state on behalf of the orthodontists of the Pacific Coast I want to welcome you to this Congress.

Address of Dr. J. Lowe Young* read by Dr. Robert Dunn, Vice-Chairman, Dr. Dunn. We will proceed with the reading of the first paper of the day, i. e., "The Advantages of Early Treatment," by Milton T. Watson, of Detroit, Mich.** (This paper was read by the Secretary, Dr. James D. McCoy.)

Discussion of Dr. Watson's Paper.

Dr. B. Frank Gray, Colorado Springs, Colo.

Mr. Chairman and Members: There is no phase of orthodontic practice in which I am more interested than in the subject about which Dr. Watson has written. The specialists in this branch of dentistry have earned the reputation of being able to correct malocclusion of the teeth in all its stages, varying from a slight malposition of a single tooth to the involvement of the whole dental apparatus; and from the age standpoint—varying from the most tender years to years of maturity.

It is all very beautiful in a way—this ability we have of bringing even the most seriously malposed teeth into a state of comparative normality. But there is no logic in the reasoning of any man who would

* See Vol. II. Page 3.
**See Vol. II. Page 6.

advocate postponing the treatment of a condition of malocclusion readily corrected in its incipiency but which becomes a laborious task if it be neglected for any considerable time.

Dr. Watson's contention as to stress and reflex disturbances arising from malocclusion, or a lack of normal development of the dental arches, sounds more than reasonable. Doubtless some will say it is a far-fetched theory; but saying so does not make it so. A few years ago it would have been considered a far-fetched theory to contend that there is any relation between certain rheumatic and other systemic conditions and pyorrhea; I believe the theory (if such it was) has been proved to be a fact.

We still hear, too often, from the dentist, this advice to the parent: "Let the child's teeth alone: they will come along all right later on." The trouble is, they do not "come along all right later on." Do you believe you are warranted in saying Nature is going to work "overtime" for the next year or two sufficiently to compensate for this serious lack of development? I do not. Delay therefore, shoulders upon the child a harder operation, with less harmonious results of treatment—to say nothing of involving a larger expense for the parent.

Again, the dentist says; "Wait until all the pemanent teeth come into place." Here again the disadvantages are as I have already outlined. We face an infinitely harder operation, involving more stress and inconvenience to the patient—with less harmonious results, and more expense.

The trouble incidental to the management of young children is a negligible quantity—if you know how! And, as Dr. Watson says, the secret of it is a love for children. If you do not possess this quality, cultivate it, else abandon working for children.

I believe the general practitioners of dentistry would gladly increase the value of their advice to parents as to their children's teeth if they were alive to the diagnostic points concerning the cases as they present. How many dentists, when a child five or six years of age presents a beautifully regular set of teeth, but which is practically wholly lacking in the "developmental spaces" between the six anterior teeth—would advise orthodontic work of a simple character? The number is small, and I feel it should be otherwise. I believe the men of the profession, or those who represent the profession in any large way—want to know the truth about this matter in order to co-operate with parents, looking to a more normal development of the dental arches, the face and to the general systemic welfare of children coming under their observation.

Thus I have probably done little more than emphasize the points of Dr. Watson's paper. However, if I have done that much I will not have spoken in vain.

Chairman. This paper is now open for general discussion.

Dr. A. H. Ketcham, Denver, Col. The dentist should educate the public in these matters, and call attention to malocclusions when they first start, or shortly thereafter. They may start with the eruption or before the eruption of the temporary teeth, and as soon as possible they should be treated, and they should be discovered early. We are teaching the people to bring the children to the dentist as early as three years of age to have the temporary teeth examined for cavities. The general practitioner should be educated to the point of making a diagnosis of malocclusion as well as the presence of cavities, so that by four years of age these cases could be started, so that not only the jaws can be made to develop to normal size but in their normal relations one to the other so that the associated bones may develop normally.

Dr. Watson has well expressed the case of managing small children. They are much easier to manage than a child at sixteen. They enter into it as a game and really seem to enjoy it. One of my little six-year-old patients would rather come to the office than go to the matinée. While we are fitting bands and constructing our appliances, our assistants can read stories to these children, or they may look at the "funnies"—and it is a splendid plan to have the leading cartoons, i. e., Buster Brown and all the others—a dozen or more books; the children spend hours in pouring over them. Out-of-town patients come in, and while the parents are shopping, the children spend the entire morning looking over the books and enjoying themselves, and prefer it to being in the stores with their mothers. So we can make the treatment of these patient a pleasure rather than a thing to be avoided.

With reference to Dr. Watson's appliance where he merely pinches the wire, it is very simple and easy and can occasion no pain at all to the patient when applied in the proper manner and used skilfully. The tendency is to pinch it too often. We need to be careful and not over-treat cases. Do not hurry them too much. We are not moving teeth from one position to another, but we are stimulating normal growth. If we keep that in mind all the time we are treating cases we will secure better results and carry them along with much less pressure than we formerly applied in the use of the old forms of appliances, especially the expansion arches.

The Chairman. Dr. W. G. Smith will read Dr. Pullen's paper.

Dr. Smith then read Dr. Pullen's paper entitled, "Control of the Overbite in Treatment of Class II cases."*

* See Vol. II. Page 16.

Discussion of Dr. Pullen's Paper.

Dr. Jas. D. McCoy, Los Angeles, Cal.

It seems to me that our essayist has handled his subject with a thoroughness which almost defies discussion. Certainly there are none of us here who feel that he has underestimated the importance in treatment, of establishing the normal overbite, for the experience of any orthodontist must teach him that the establishment of this condition is one of the very foundation stones upon which a normal occlusion must rest.

I think it will be safe to say that in such cases as the essayist has described, more failures have resulted through neglecting this factor than from negligence in almost any other phase of treatment.

The essayist has mentioned certain structural changes in development, which result in the establishment of an abnormally deep overbite, viz., the lack of vertical development in the region of the bicuspids and molars of one or both arches. He has attributed this lack of development to one of several causes or to a combination of them all. He says that "a deficiency in the use of the muscles of mastication and deglutition, as well as a lack of the respiratory functions, may each have a share in this inhibitory influence in the development of the bony structures of the dental arch," and also mentions as a causative factor, "a lack of nutrition or a lack of the stimulating action on development produced by the pitutiary and other glands of internal secretion."

In considering the etiology of the abnormally deep overbite, it seems to me that diseases which interfere with the nutrition of the bony structures, justly deserve an important place among the predisposing causes.

Among the several diseases which should be considered in this connection, it seems to me that rickets should always be regarded as a possibility. This disease which is essentially one of malnutrition and is characterized by faulty bone formation, usually occurs at a time when the growth of bone is most rapid, and therefore its effect can be most serious.

This disturbance of metabolism in which calcium plays an important rôle, occurs most frequently between the ages of six and eighteen months, although some observers claim that the disease may be manifest even much later than this, persisting in some cases throughout adolescence.

Normally, bones contain about one-third organic and two-thirds inorganic matter. In marked cases of rickets, the proportions are reversed, the bones containing twice as much organic as inorganic matter. Characteristic changes in form are seen, particularly in the long bones, but all bones are affected to some degree, and it is only reasonable to ex-

pect deformity in bones subject to muscular stress, as for intance, the maxilla and mandible.

As rachitic bone does not offer sufficient and proper support for the teeth to withstand the positive force of the muscles of mastication, deformity to some degree must nearly always ensue. It is not unreasonable, therefore, to assume that a lack of vertical development in the region of the bicuspids and molars (the region of greatest stress) could be the result of this disease.

Dr. Dunn.

The paper is now open for general discussion. This subject is vital to us all and I would like to hear a goodly number of discussions.

Dr. A. B. Suggett, San Francisco.

I have a good many cases of this type and I have not tried the vulcanite plate spoken of. The elongation of the deciduous molars to open the bite I tried a number of years ago in an imperfect way and lost my enthusiasm for it. I have been using the bite plane Dr. Rogers spoke of in his paper in Boston. I have been very well satisfied with it and do not know of any cases where I have not gotten fairly good results with it. It seems rather risky to put a bite plane on the upper centrals and leave the whole stress of mastication to come on those two teeth, but I have not found, after the first week, that the patient objects very much, and then with the intermaxillary ligatures as shown in the illustration (from the upper molar forward to the hook, and engaging the hook on the lower molar) in most cases in from six to eight weeks the teeth are down—molars and bicuspids, in proper occlusion. The bite plane will have to be worn for a considerable time and care taken that the upper molars are fully moved back or past the normal occlusion a little, in order to throw the lower jaw forward as far as it should be and exaggerated a little bit to catch the upper teeth and maintain them there. I had a case a few years ago with which the Chairman may be familiar, treated by another man and turned over to me. Everything was corrected except an abnormal overbite, and with the bite plane and ligatures we finally got the case into perfect occlusion. He made a trip to Europe and I took pains to have everything solid and firm. He visited a dentist abroad to have the appliances removed. It had drifted a good deal when he came back.

It does not seem to me that this is a perfect way of doing the work, but so far I have corrected most of my cases of this type in this way and have succeeded in getting them into occlusion.

Dr. Ketcham, Denver.

Just a word in relation to the bite plane. I think all orthodontists will agree with Dr. Pullen that we must establish a normal overbite in these cases. In my own practice I have found that I was obliged to differentiate between the methods of accomplishing this in Class I and Class II cases. The vulcanite bite plates seem crude to me, though I believe them to be the most efficient of the bite planes. I have used in many cases bite planes made of heavy clasp gold attached to bands, either on the central or upon the cuspids, and I found that while they worked perhaps better in Class I cases than in Class II. unless their use is associated with the use of the intermaxillary ligatures the mandibular teeth would slide back until the patient would bite posteriorly to the bite plane. I have seen that in my cases and in cases from other men. More recently I have found the use of bands or crowns on the molars as suggested by Dr. Pullen, to be better treatment. For instance, with the bite plane we usually wait until the period of retention is reached to open the bite, while I consider it better treatment to open the bite if possible, at the beginning of treatment. We secure better results and correction of the malpositions of the teeth is easier. In the cases where temporary molars are present it is now my practice to crown the lower second temporary molars. Occasionally where I at first intended to crown these teeth, I discovered by means of the radiograph that the lower second premolar was absent; therefore, it was necessary to use the first molar. In making the shell crowns for these teeth the occlusal surfaces should be reproduced anatomically. An impression should be made if the tooth is not mutilated, and the occlusal surface restored in the shell crown so that the tooth will occlude properly with the upper tooth if in Class I, or in Class II, so that it will occlude properly if moved forward. Reproduce the surface of the tooth which you are crowning. If the temporary molar is lost, or the roots nearly absorbed, and its successor not present, then we must use the first permanent molar and crown that to open the bite, and to the buccal or lingual surface make attachments for the appliances. Then after the case is treated and you reach the period of retention, the molar crown may be removed and a band placed on this tooth. In that case the bicuspids will be up in place and striking and possibly the second molar. When the molar crown is removed, of course, the molars will be too short, but with bands around these and with an attached lingual wire to prevent tipping, and with hooks on the buccal surfaces, by using the intermaxillary ligatures for a few days or weeks, these teeth are up and occluding properly. This is better than the method which I formerly relied on in the early years of

my practice, when I used a vulcanite plate with a lingual inclined plane, or the lingual inclined plane, attached to the anterior teeth.

Dr. Dunn. I would like to ask Dr. Ketcham if he has noticed any results in the use of these crowns on the deciduous teeth, as to retarding the eruption of the bicuspids?

Dr. Ketcham. I have not Doctor, and I check up with radiographs before crowning and then keep track if I find it necessary later. I have found no change in position. In fact the temporary molars would be lost a little earlier if possible, than had we not had them crowned and had we not put intermaxillary ligatures on these crowns. The absorption goes along normally and the premolars come down, or up, into place nicely.

Dr. Dunn. My reason for asking this question is, at the Washington meeting I mentioned the fact I had been been using crowns on the deciduous molars. My experience has been anything but pleasant with them and I have abandoned the method entirely. In the report of cases I recorded the use of these crowns, struck up in the exact form of the normal tooth crown, but the effect on the development of the permanent teeth has been such that I have abandoned it.

Dr. Ketcham. I think you happened to run across some cases which you had crowned, in which the premolars were coming in bucally or lingually.

Dr. Dunn. They were retarded in their development.

Dr. Ketcham. They come on a little faster, if anything, I imagine. As fast as normal anyway. I have checked them up with the radiograph. The roots are absorbed when I remove the crowns.

Dr. Suggett. I wish to speak of one point. I agree with Dr. Ketcham as to putting on a bite plane when starting the case. I do not think there is any danger of injury to centrals in the use of the bite plane. I took impression of a young man. He fell off a bicycle and drove the left central and left lateral into the gum, practically out of sight. They were drawn down gently without devitalizing either tooth. The bite plate was put on as soon as firm. The case went on splendidly. Neither tooth has been devitalized.

Chairman. If there is no one else to take part in the discussion we have another paper on the program which I believe will be very interesting. The paper

is entitled, "An Instrument for Surveying and Mapping the Denture," by Dr. Frederick L. Stanton, New York.*

The Chairman. In the absence of Dr. Stanton, and because of some mathematical problems of a very technical nature involved in his paper, I will ask Dr. Suggett to read a brief synopsis of the paper, and show the lantern slides provided by Dr. Stanton.

Dr. A. H. Suggett, of San Francisco, gave a brief synopsis.

The Chairman. As the discussion was to be opened by Dr. Dewey, and he is not present, the subject is open for general discussion. I regret exceedingly Dr. Stanton was unable to be here. He probably could have placed the matter before us in such a manner that we might have derived a great deal of benefit from the paper. This closes the work before this Section to-day.

September Third.

Chairman. We will begin this morning by asking Dr. Ketcham, of Denver, Colo., to read his paper.

Dr. Ketcham then read his paper entitled: "Dr. Edward H. Angle's Pin and Tube Appliance."**

Discussion of Dr. Ketcham's Paper.

The Chairman. As Dr. Moorehouse is not present I will call on the Secretary to read his discussion of this paper.

Dr. McCoy read the discussion presented by Dr. Moorehouse.

Dr. H. L. Moorehouse, Denver, Col. In opening this discussion I feel like a man acting as his own judge at a trial. Dr. Ketcham and I have spent many hours together discussing the workings of this appliance, and I have always gone away with many new ideas which have proved valuable. I also feel in giving a discussion where one cannot be present to adjust any misunderstood statements that injustice is sometimes done both to the essayist as well as to the one discussing the paper. However, with this explanation I will proceed.

The only discussion I feel justified in making is by way of emphasizing a few points which I feel are of greatest importance.

There is a lot of satisfaction to me in placing one of these appliances

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* See Vol. II. Page 38.

**See Vol. II. Page 77.

in a mouth as I know that the stimulus for bone development will be positive and certain in any direction if the forces are properly applied, with less annoyances to the patient and more peace of mind to the operator than with any of the older apparatus.

The prophylactic advantage is as important a point to consider as any, especially in view of the fact that we do away with the ligature irritation of the gum tissue, particularly at the interproximal spaces.

The necessity of greater technical skill is one point which needs to be emphasized, for through the slightest carelessness a great deal of damage could be done.

Regarding the expense, I am going to take issue with Dr. Ketcham, because I feel that in cases which later show they need the stimulus which is only possible to obtain by this appliance that it should be used regardless of whether we have obtained what the Doctor describes as a maximum fee. We are not basing our fees on the cost of the materials used, but on our ability to deliver results.

Again I wish to emphasize the essayist's remarks concerning the use of inferior material. This is especially true with the new appliance, but also with the old ones. The best is the cheapest in the end.

I will only make passing comment on the cases exhibited. Since a year ago when I spent some time with the essayist I have been using the short pins and tubes on deciduous cases and find them much more satisfactory and just as efficient as long ones.

Also in deciduous cases at Dr. Young's suggestion, I have used two pins and tubes for the temporary cuspids with a great deal of satisfaction, as they hold the teeth more stable.

The Angle-Young attachment for the molar teeth is especially attractive to the orthodontist as well as the patient, particularly in cases requiring no mesio-distal movement between the molar and cuspids.

In closing I wish to thank the Committee, as well as Dr. Ketcham for the privilege of discussing this paper, although unable to attend the Congress.

Dr. John R. McCoy, Los Angeles, Cal.

It has been a very great pleasure to listen to Dr. Ketcham's excellent paper upon a subject so vitally interesting to us all. In discussing the advantages of the New Angle Appliance it is but natural to use the old appliance as our standard of comparison, since it was our dependence for so many years. Because of the excellent service rendered us by the old appliances there were probably many who were a little reluctant to abandon an old friend whose virtues had been proven, and adopt a newer one as yet untried. Doubtless had Dr. Angle's fertile

brain failed to evolve the newer device we would still be achieving excellent results by the use of the older one.

Like many of you I was very conservative as to the wide adaptability of this appliance when I first began its use, but with satisfactory results attained, my confidence in it as an agent has grown steadily, until I feel that without it we would fail in many cases to gain perfect results.

The extremely interesting and remarkable results which Dr. Ketcham has just shown us, should prove an inspiration to more earnest effort on our part to attain a more thorough knowledge, and a finer technique in handling the new appliance so that we, too, may accomplish similar results.

Dr. Y. C. Smith, Pasadena, Cal.

I have been conservative, as Dr. McCoy has said, in the use of these appliances, and have found the technique difficult, but I am learning the use of them by experience and as a result I am taking more complicated cases, and some of you may have seen a little device I use similar to that shown by Dr. Ketcham. We can move the teeth faster than we want to, and we must be careful, especially in younger cases. The advantage of using this small wire in young patients, is to prevent the permature loosening of the temporary cuspids, an important consideration. With patients from six to ten years of age, where wire ligatures are used, you are apt to create an inflammatory process tending to produce premature resorption of the roots of the teeth, and as their successors are not replaced until twelve or later it is important to conserve them until their successors are ready to erupt.

Dr. Alex Manhood, Santiago de Chili.

I have heard with keenest interest, the paper of Dr. Ketcham. Pardon me if my English is not very good, as we speak Spanish in our country. I have been using the appliance to some extent for about one year, but I have had trouble with its proper adjustment, finding it especially difficult in cases where the four incisors and two cuspids are erupted. The compressing of the wire with flat pliers, the loops, etc., have given me quite an amount of trouble. I want to hear from Dr. Ketcham as to how he manages these cases.

Dr. Orman Lopez, Havana, Cuba.

I heard with pleasure the reading of Dr. Ketcham's paper, which I was eagerly waiting for. I really feel that the tube and pin system, invented by Dr. Angle, is something wonderful in its action for the correction of irregularities of the teeth. I have tried it three times with young patients and my experience is satisfactory. But let me tell

you that in listening to a clinic yesterday I heard a gentleman say he was not a "Methodist"—and I think he meant by that that Dr. Angle's system is not the only system that should be applied by orthodontists.

I have been using also for a short time, the regulating appliances invented by Dr. Jackson, of New York. Before that we used the appliances in which a rubber plate is required, and from my limited experience with all of them—taking into account that I belong to a country where the children are seldom sent for regulation of their teeth—I look for something that may be more efficient in the treatment of older patients than the pin and tube system. Patients come to us from seventeen years up, particularly young girls who notice their facial disfigurement and look for relief. Sometimes our patients may be as old as forty years and they require a dentist to regulate their teeth, so that we are looking for something that will enable us to do effective work for these more mature patients. I have come to the conclusion that for people from seventeen years up we could use successfully such an appliance as that of Dr. Jackson, at least for the first month or two, and when the teeth are a little regulated we could begin using Dr. Angle's appliance.

Dr. Ketcham. I thank you, gentlemen, for the discussion. I think the only question asked me was by the gentleman from Chili. In regard to the adjustment of the appliance, the whole tendency in this work is to adjust it too much. We are accustomed to a large arch wire, and with the large arch wire we transmit the power to the teeth through ligatures: the ligatures slip, and much of the force which we apply is lost. In this appliance we are beginning to use, none of the force is lost: all of it is transmitted to the tooth, but we are apt at first to use the same force we do in the old appliance and therefore we have a great deal too much. We must measure this force. Dr. J. Lowe Young, of New York, has suggested adjusting the appliances so that the pins are thrown in the direction we wish the tooth to go, just the width of the wall of the tube and only to that extent, and if we do that we will be safer than if we adjust it so that the pin is standing away from the wall of the tube.

If we wish the root to move further than the crown, we bend the end of the pin in that direction slightly.

Dr. Robert Strang, of Bridgeport, Conn., has designed an instrument—the Archograph—and I would advise anyone starting to use this method to secure it. It was described in the *Dental Cosmos*, I think in the May, 1914, issue. By writing to Dr. Strang in Bridgeport you can secure information relative to this instrument. With this the exact amount of adjustment of the appliance is measured each time it is

adjusted, and this makes for accuracy, and with its use you will not go so far wrong in the adjustment. In this way I think the trouble with the anterior teeth especially, will be overcome.

Dr. Ottolengui, of New York, then read a paper entitled, "The Line of Occlusion."*

Discussion of Dr. Ottolengui's Paper.

Frederick C. Kemple, D.D.S., N. Y. C.

The crop reports of 1876 are interesting to those who are interested in the 1876 crop reports. Likewise, a study of the term "line of occlusion" may be interesting to those who are interested in trying to establish some sort of a definite meaning for the term, or a definite location for such an imaginary line. Personally I can see little, if anything, to be gained by such an effort.

To my understanding, "line of occlusion," as originally coined by Dr. Angle, and as it stands to-day, is practically a synonym for "normal occlusion," which latter term I believe to be much more desirable for general use in dental literature because its meaning is almost universally understood by members of the dental profession, while the exact meaning of "line of occlusion" is, apparently, only comprehended by a few of the graduates of the Angle school of orthodontia, or by a few careful students of Dr. Angle's work.

The best language in the world is that which conveys most clearly to the hearer or reader the definite thoughts of the speaker or writer; it is therefore desirable to use, as nearly as possible, only words and terms that are most generally understood by those addressed. When one speaks of "normal occlusion" every dentist within hearing, who has given even slight study to the occlusal relation of the human teeth, has formed in his mind's eye a very clear image of that beautiful picture of a perfect human denture; the incisors, cuspids, bicuspids and molars perfectly aligned in the graceful curve of a normal dental arch, with an effective incisal overbite and a faultless interdigitation of the cusps of the cuspids, bicuspids and molars. This is the picture that presents itself when one speaks of "normal occlusion."

But when we speak of "line of occlusion" the result is different; a very few of those addressed, if any, have any kind of a clear comprehension of just what we are talking about; and of the possible few who have a "clear comprehension" probably no two of their conceptions are alike. The essayist was himself astonished to learn that his own con-

* See Vol. II. Page 94.

ception of the term was faulty; he wrote to numerous graduates of the Angle School asking them to define the term and their replies indicated that *in the main* these men agreed with the essayist—which implies that some of them *did not agree;* also, the essayist says that not a single reply agreed in the slightest degree with the definition formulated by his critic, who was also a graduate of the Angle School. It is inconceivable that such a confusion of ideas could result if one used the term "normal occlusion." It is very easy to fall into the way of making phrases for their own sake, instead of for the purpose of expressing what one has to say.

The Angle classification of malocclusion was a most valuable contribution to the terminology of orthodontia. One who is familiar with this classification can easily and clearly describe in general terms the various malpositions of teeth in malocclusion without reference to the "line of occlusion." He not only can, but, in fact, does. Among orthodontists and dentists generally teeth in malposition are spoken of as being in "lingual occlusion," or "labial occlusion" or "mesial occlusion" or "distal occlusion," which simply means lingual to normal, or labial to normal, or mesial to normal, or distal to normal, etc., etc. The meaning of these terms is comprehended by any dentist who is familiar with normal occlusion of the teeth. The essayist believes we should and can be more definite than this—that such diagnosis depends upon the examiner's individual notion of what the normal really should be. As a matter of fact, all diagnosis, whether it be of malocclusion or any other physical or mental disability, must depend entirely upon the examiner's individual conception of normality and his ability to detect and recognize variations from the normal. Dr. A's diagnosis of a given case may differ from that of Dr. B, and neither one of them may agree with Dr. C—all because they have not the same conception of what is normal, nor equal ability to detect and recognize variations from the normal.

In attempting to find a definition for the term "line of occlusion" both the essayist and Dr. Angle start out with the assumption that the teeth are in "normal occlusion"; they then assume an imaginary line that is "in contact" or "in harmony" with the teeth that are in normal occlusion, and from this line they measure the degree of malocclusion. But unless the examiner has a correct conception of normal occlusion to begin with, he has no means of locating or determining where their imaginary "line of occlusion" is; and if he has a correct idea of normal occlusion, I cannot see wherein this imaginary line can aid him in arriving at a correct diagnosis. The essayist has conceived an ingenious method with the tin-foil of locating a line, or two lines, or as many lines as may be

conceived as passing through the tin plate around the arch, any one of which might, with equal correctness, be called "a line of occlusion"; but in measuring the degree of malocclusion of any given case by this method one must first assume or imagine the teeth of this particular case to be in normal occlusion, then this piece of foil to have been placed between the upper and lower arches and the teeth closed and the foil trimmed. In each case, before any line of occlusion can be located a correct conception of its occlusion must first be formed. If the examiner is not able to picture in his mind a perfect occlusion of the case under consideration, he cannot possibly locate a correct "line of occlusion"; and if he is able to see in his own mind a picture of these teeth in perfect occlusion, I cannot see wherein a "line of occlusion" will add anything to his already clear understanding of the case.

Dr. Fred'k S. McKay, Colorado Springs.

It is with a considerable degree of trepidation I rise to undertake the discussion of a subject to which I have given so little study, and which the essayist has given so much.

Until reading this paper (which I was privileged to do) I had thought of this "line of occlusion" strictly as a line that was laid out as running in a certain way, over various surfaces of the teeth; but since giving it brief consideration I have been forced to the conclusion that the definition as formerly laid down by Dr. Angle, as being "the line of greatest occlusal contact when the jaws are closed," is, as he has said, "inadequate." In my estimation it would be very difficult to lay down any definite linear location on the teeth and say "here is the line of greatest occlusal contact." An elaborate description of the line of occlusion, intended to clarify a conception of it in the mind of the student, really confuses. Sharp, unworn cusps might come into contact in a "line,"—the "edge of something."

The line of occlusion exists in imagination only, and actual contact of the teeth is by means of planes or facets which have appreciable area.

I find it hard to conceive of that condition of occlusion in which the greatest occlusal contact is in the form of a "line"—using the term in its strict geometrical meaning—that is, having only one dimension—length. Hence, the "line of occlusion," whatever definition we accept, must be an imaginary thing and very hard to demonstrate.

As a matter of fact, Dr. Ottolengui's experiment with the tin-foil seems to show that the teeth are in occlusal contact over considerable areas, but whether the greatest occlusal contact lies along a line which runs as Dr. Angle describes it, would, it seems to me, be very hard to demonstrate. Further, inasmuch as the most of the surfaces of the slopes

of the cusps are of convex form, if unworn, with a convex or bulging surface of an upper tooth let us say, in contact or occlusion, with a bulging surface of a lower, the contact is really a point only—like two marbles touching one another. Hence, the "line of occlusion"—so-called, becomes a series of dots from one end of the denture to the other.

The insertion of carbon paper between the occlusal surfaces of upper and lower casts of the nearest normal cases in my collection, failed to show anything more than a series of spots upon which the upper and lower teeth came into contact.

Until reading this essay, this matter of there being any such thing as a "line" of occlusion had never occurred to me, except in the more or less stereotyped way in which I had been taught to regard it, but I am forced to the conclusion that we are discussing something that has no basis in fact, if we adhere to the geometrical definition of a "line." However, in so far as I am able to interpret Dr. Angle's definition of the "line of occlusion" I must conclude that he had reference to a line that existed only in the imagination, and in order to convey a clear conception of the relation the teeth should occupy, to the mind of the student, he projected that line as running along the crests of the cusps of the buccal cusps of the molars and bicuspids, and along the incisal edges of the cuspids and incisors of the lower teeth, and through the grooves between the buccal and lingual cusps of the molars and bicuspids, and upon the lingual surfaces of the cuspids and incisors about one-third of the distance between the cutting edge and the gingival margin on the uppers. This, I repeat, is wholly imaginary, but I believe that it does serve to convey to the mind of the student a good conception of the normal occlusal contact of the teeth. Dr. Angle scouts the idea that this line can be geometrically predetermined or located, but insists that it be regarded as the ideal, and to be seen only in the mind's eye, but that in a general way it exists in the location described.

In reference now, to Angle's later definition of the "line of occlusion," I find little difficulty in the use of the term "in harmony with"—which is criticised mildly by the essayist. I realize much more difficulty—in fact, the impossibility of laying down an exact location for such a line upon the teeth, and the exact form of such a line, and then in placing the teeth in harmony with this line. "In harmony with," I interpret to mean, "in coincidence with," and I find much more difficulty in accomplishing the tooth movements through the various directions of space to bring the teeth into coincidence or into harmony with this line, than in the mental conception as to about where such a line is located. Having experienced some difficulty in the acceptance of any definite or literal "line" of

occlusion, I confess also to a difficulty in conceiving any one plane of occlusion, or "occlusal plane."

It seems clear to me that the approximation of the several interdigitating surfaces of the teeth cannot be in a "plane," if in the use of that term, we have in mind a surface that is described as having area only. The experiment with the tin shows such a surface to be extremely indented or corrugated, and contradicts the geometrical idea of a plane. My suggestion is that we consider the term "line of occlusion" as having existence in the mind's eye, and its location only approximate, and that we discard the term "occlusal plane" in any literal sense.

I had been hunting for a term to use instead of the "occlusal plane" and I like the essayist's term—"Area of occlusal contact," and referring to the tin-foil it certainly could not be called an occlusal plane. I understand better since hearing this paper, that we might have lines running almost anywhere along the area of occlusal contact, any one of which is declare to express the "line of occlusion" as well as any other one line.

Dr. Weiss, Havana, Cuba.

I wish to congratuate Dr. Ottolengui with all my heart for his work, because I think that when we have the "line of occlusion" plainly described and understood, that it will be a very great service to advanced dentistry. I think the orthodontists and those engaged in prosthetic dentistry as well, are empirical with reference to the "line of occlusion." It is a pity that my Spanish tongue does not permit me to make you understand better, and three minutes is a very short time for my discussion!

(Dr. Weiss here explained his method of predetermining the line of occlusion, as published by himself several years ago in the Spanish language. Unfortunately the stenographer has failed to correctly report Dr. Weiss's remarks, nor could they be made clear to the reader without illustrations, which are not at hand. Those interested in the subject are therefore referred to Dr. Weiss's original article. It should be said, however, that Dr. Weiss took issue with Drs. Kemple and McKay, claiming that a well defined "picture" of the line of occlusion can be determined not only in cases of malocclusion, but likewise for edentulous jaws in which this serves as an adequate guide to the prosthodontist in articulating artificial teeth.—EDITOR.)

Dr. Ottolengui.

Drs. Kemple and McKay both declare that it is easier to get a mental picture of normal occlusion than it is to imagine a "line of occlusion." So likewise is it easier to get a mental picture of a complete house than it would be to visualize the architect's plan of that house, but the mechanics called

in to construct, or to reconstruct a house, would probably prefer a definite plan.

I do not admit for a moment that the correction of a case of malocclusion need necessarily depend upon the varying diagnosis of various specialists, each of whom may formulate a different diagnosis based upon a totally different mental picture of normal occlusion. Of course, normal occlusion always means a certain definite arrangement of the teeth that they may functionate in a definite way. This is the fundamental fact. On the other hand, normal occlusion may exist in varying arch formations and with varying occlusal planes. If the orthodontist should conceive the wrong arch form for the case to be treated he might waste precious time for his patient, let us say by over-widening. If he could predetermine this arch form he would not fall into this error.

Something of this sort we know was done by Hawley. The Hawley arches have been criticised as being all of one type. Nevertheless, they have proven very useful to those that have utilized them.

Next we had the work of Dr. Weiss. Unfortunately it has not been published in English. Yet I had the good fortune to have Dr. Weiss explain his method to me, and the remarkable result that he obtains is that he describes arches of different forms.

As an experiment in my office, I gave to Dr. Weiss the dimensions of the teeth of casts in my cabinets, taking the measurements prior to treatment. He then figured out geometrically the correct arch forms for such teeth. When these diagrams were compared with the casts of the corrected cases they invariably agreed with the arch forms as indicated in the models, and likewise correctly depicted the shortcomings of the treatments; that is to say the aberrations from normal.

So I believe that the line of occlusion is not imaginary but very real; that there is but one correct arch form and but one correct occlusal plane for any given set of natural teeth and that this arch form and occlusal plane can be expressed pictorially and used as a plan for treatment.

There are other uses for the "line of occlusion," but these were outlined in the paper, and I believe that a study of the paper will disclose that both Dr. Kemple and Dr. McKay missed something of my meaning.

Dr. Dunn. We are unfortunate in not having Dr. Baker, of Boston, here to read his paper. He has done a very great deal of research, and his paper would be more appreciated if he were here to give it. I will ask Dr. John R. McCoy, of Los Angeles, to read Dr. Baker's paper.

Dr. McCoy then read Dr. Baker's paper entitled, "Further Evidence as to the Influence of the Forces of Occlusion on the Development of the Bones of the Skull."*

Discussion of Dr. Baker's Paper.

Dr. E. A. Bogue, New York City.

I do not know whether it is worth while for me to say anything on this subject. It is the only subject I have had any special interest in for the last fifteen years, and I find I know so little about it that I hesitate to rise.

Dr. Baker speaks of Campbell and his work. Campbell brought forward the statement, a few years ago, that if the newly weaned child could be made to masticate thoroughly there would be comparatively no irregularity among the teeth. He is a practicing physician in London, and not a dentist and not an orthodontist. He has written considerably. Then it so happens that a man named Sen, of Danzig, Germany, whose work has been along rhinological lines, sewed up the nostrils of some animals—rabbits or guinea pigs. He sewed up one nostril and found a lack of function because of practically the same conditions Baker has called attention to in the animals he has deformed and experimented upon. Later on, Hooper, of Boston, in 1880, examining adenoids, found that when children afflicted with those growths failed to perform the function of breathing properly, that most of them, especially if the adenoid growth were of considerable size, were found to have curvature of the spine. I undertook to get hold of the children that were about to be discharged from one of our hospitals, but they would not allow me to see them. The children who go to the hospitals for affections of the eyes, nose or ears, as far as I have observed, are always children with irregular teeth. I wanted to look into that question. Langenbeck, of Berlin, removed the germs of teeth from a portion of a litter of puppies, and did it two or three times and found the same results as Baker has found. You are all familiar with the experiments of G. V. I. Brown on puppies.

For myself, I have been looking at children since 1900, and have noticed that all the children with saddle-shaped arches that I have seen, have also curvature of the spine. If curvature of the spine, then they have necessarily crooked ribs, and if the ribs are crooked the thoracic cavity must necessarily be diminished in size, and that grows out of the fact that the lungs have not been fully expanded because there was not

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* See Vol. II. Page 106.

room for the ingress of air in sufficient quantity—lack of oxygen, and there is no room for the heart to function as it should. It does not get the stimulus to do its best work, and the animal therefore is undersized: it has not had sufficient heart action.

It seems to me many of us have been sadly remiss in not recognizing the fact that we have in our hands some of the main springs of life and well being.

Dr. Baker speaks of the diminution of the size of the skull and announces his belief that that would have to do with brain power. I think that is unquestionable. I was greatly struck when in Dresden the last time I noticed at the Congresss of Hygiene that the average weight of a baby's brain is about 371 grammes at birth, while it is 1360 grammes when the child reaches six years of age. From birth to six years of age is the time during which the changes which Dr. Baker alludes to in his paper, in the lower animals, take place in man—in the human child. And while the brain in the child of six should have increased to 1360 grammes, it sometimes only increases to 1400 grammes when that child reaches nineteen years of age. It gives us something to think of when we see that the enormous growth of the baby from birth to six years must include preparation for the placing of the permanent teeth for mastication which is so much required, and it must include the establishment of such forces on the part of the lungs and heart as shall cause the proper growth of the human animal.

Dr. Baker alludes to the influence of function having to do with the shape of the head, and says that it may be modified by mastication: yes, and it may be modified by failure to masticate too, and it can be modified by breathing and merely by a failure to breathe properly, as I have already stated. And so the whole animal is modified.

Now this arrest in development which always takes place if the proper performance of function is interfered with, involves, in the case of the human child, the nose, face and the various antra as well as the arches of the teeth, both temporary and permanent, and probably the whole body. We find in these cases of failure of development that the enamel of the teeth is found to be defective and liable to decay: while, if function has been properly performed and the baby was not ill from birth to the time of the formation of the permanent teeth and their development, we do not find defective teeth and the services of the orthodontist is not required. They are practically self-cleansing to the point of being physiologically clean: not absolutely clean but so clean that with the covering Nature has given them they do not decay, and probably will only be lost, if at all, through the action of pyorrhea—through the chewing of soft foods instead of hard.

Dr. B. Frank Gray then read the paper by Dr. Alfred P. Rogers entitled: "The Use of the Angle-Young Lock and Auxiliary Wires in Conjunction With the New Angle Appliance."*

Discussion of Dr. Rogers's Paper.

Dr. W. C. Smith. This is simply the report of treatment of a case by Dr. Rogers, and of course, it shows perfect results. There is nothing anyone could take exception to in his paper. We all possibly do things differently. The use of the sharp loops he makes in the molar region I do not favor so much as Dr. Ketcham's idea of using the less acute loops. I like the sweeping curves shown by Dr. Ketcham here this morning. I think they could be used in such a case as Dr. Rogers has presented.

Dr. Ketcham. I do not like to monopolize the discussion, but Dr. Rogers's case was certainly a difficult one, beautifully treated. He is a splendid operator. I wish to emphasize one point, i. e. He said accurate measurements were taken and a record kept of each adjustment. That is important, especially where you are lengthening the loops. It is quite possible to depress a molar you are using for anchorage. For instance in the large loop from anterior region back to the molar, if you take a pair of pliers and straighten this loop at one point, that throws the loop up or down, and unless you make a corresponding compensating bend, you will depress or elevate the molar. These wires should be checked up each time. I check up on the teeth themselves. Replace on the teeth and check up by the remaining tubes to see just what changes of adjustment you have made. Dr. Strang's Archograph is the best and most accurate method. If you are not careful with those excessive loops you will push the teeth in a direction in which you do not wish them to go, and you have the chance too of moving the roots too much and thus possibly root absorption may take place; so I say be careful! The section then adjourned.

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* See Vol. II. Page 128.

Discussion of Papers Presented in Section VIII.

Operative Dentistry

Section VIII.

Operative Dentistry.

Chairman: Dr. John Sayre Marshall, Berkeley, Cal.
Vice-Chairman: Dr. H. A. Friesell, Pittsburgh, Pa.
Secretary: Dr. E. A. Tripp, Salt Lake City, Utah.

August Thirty-First.

Dr. John S. Marshall. Ladies and Gentlemen: Yesterday I believe you were given a very cordial welcome by the Governor of this State, to California, to the Golden West, to the Pacific Coast. You were also given a very warm welcome by the Mayor of this city, who I believe promised that he would tip the police so that if you happen to lose your way you would not be run in, but would be taken home safely. The President of the Exposition dwelt at some length on the beauty of that Exposition. Those of you who have been out there know it is beautiful: those who have not been there can take my word for it that it is the most beautiful Exposition—I suppose I should say, barring San Diego, as I see one gentleman here from San Diego, and it would not do to say anything else. Nevertheless it is the most beautiful Exposition ever built and I have seen all the Expositions in this country except the one in Philadelphia in 1876: then my pocket was too thin for wife and me both to go together, so she went alone—but I have seen all the others. The Exposition in San Francisco, of course, is not so large as were those at Chicago and St. Louis, but it is much more beautiful than any of them.

I want to bid you welcome myself, as Chairman of this Section, but I bid you welcome to seven or eight days of the hardest work you have ever done in a meeting. When this Congress was called to order I supposed I had thirty-two papers: four of those I have lost. To-day we should have had Dr. Fitzgerald, of Hartford, Conn., and three of his friends who were to demonstrate his work. His subject was to be "Zone-therapy." I will ask the Secretary to read a telegram explaining why he is not here.

Telegram: "John S. Marshall: I regret that two desperate cases in my care make it quite impossible for me to attend your Congress. Dr. Lawton has recently had an attack of appendicitis so his coming is out of the question.—W. H. Fitzgerald."

When I received that message, I thought—"The best laid plans o' mice and men, aft gang aglee." I had arranged, through personal correspondence, an elegant first day's program, but we lost out on that, and so we fall back on another portion of our program this morning.

I wish to introduce to you Prof. H. E. Friesell, of the Dental Department, Pittsburg, Vice-Chairman of this Section; also Dr. E. A. Tripp, of Salt Lake City, our Secretary.

The Committee of Organization has ruled that all papers must be condensed to twenty minutes, except those which are to be illustrated by the lantern, and for those, extra time will be allowed. Gentlemen who open discussions on papers, will be limited to ten minutes. Most papers have two gentlemen to discuss them, and the others, from the floor, will be confined to five minutes.

The Chairman then introduced Dr. A. C. Wherry, who read a paper entitled, "Electricity as an Aid to Oral Diagnosis."*

Discussion of Dr. Wherry's Paper.

Dr. L. E. Custer. We have just listened to a paper which has dealt with one phase of the most wonderful energy ever introduced into dental practice. When we stop and think that through an ordinary sized gimlet hole there can be brought into the office five or ten horse-power of energy, it is one of the greatest feats ever accomplished by man. And at the other extreme, it is an agent producing the most delicate heat, so carefully graduated that the acute sensitiveness of the dental pulp can scarcely distinguish it. Again, the most intense light ever produced has been through electricity.

Electricity has other properties: electrolysis, cataphoresis and magnetic influence and impulse. So, no agent has ever been introduced in the dental office with so wide a range of purpose and qualities. To-day we have had one phase of it taken up, i. e., as an aid in dental diagnosis, and the paper confined itself strictly to this.

The Doctor's applications are those of light waves of the ordinary transmitted light from the mouth lamp—and another form of light, the X-ray, which originates, so far as we have discovered, at the extreme

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*See Vol. II. Page 135.

of the whole range of light. Peculiar as it may seem, both the X-rays and wireless telegraphy (the other extreme of wave length) were discovered at about the same time.

Use of Electric Lamps.

You are all familiar with the common applications brought out by Dr. Wherry in the use of the mouth lamp, and as an aid in diagnosis it does not lie. With the strong lamps we have now, the condition of the antrum, and even the condition of the pulp canal—whether it is filled properly or imperfectly, may be determined. Just from the lamp alone, you can fairly well define a pus pocket. We have electric mouth lamps about as long as a pencil. They have two cells, and with that lamp, which you can carry in your vest pocket, you can make a fairly good diagnosis in a minute. There are stronger lamps made for this work, somewhat similar to those used by electricians in their work in dark places about the house. Dr. Stern, of Cincinnati, made one contained in a vacuum, on the principle of hot and cold bottles. It produced an intense light, and in a dark room you can see through the sinuses of the mouth, face and nose, and yet it is without heat to the patient, due to the fact that it is made on the principle of the thermos bottle.

Use of X-Rays.

Coming to the X-rays, there has been introduced into the dental profession nothing of greater importance than the X-rays, for the principal reason that the radiograph tells you the exact conditions that obtain. It does not lie. The trouble, and the objections that have been raised against the radiograph are almost entirely due to faulty interpretation. You must understand what the shades and light places mean, which can readily be learned by anyone. As an aid in diagnosis of conditions which cannot be seen with the eye, or which are beyond the range of the ordinary lamp, the radiograph is the one valuable agent above all others.

Uses of Faradic Current.

Another use of electricity as a diagnostic agent has been brought out recently by Dr. H. Prinz, of Philadelphia, i. e., in pulp conditions to differentiate between hyperæmia and death of the pulp. Dr. Prinz claims that by the use of the Faradic current these different stages, heretofore so difficult of differentiation, may be clearly made out and easily defined. He makes the application to the enamel of the tooth with one electrode, and uses a pad to complete the circuit. I have been in doubt about this. The enamel of the tooth is an insulator, just as porcelain is, and his contact must be on the dentin I think. In the pulpless tooth there will be no response whatever; but if there is any vestige of

pulp half way up, you can get a differentiation, from that stage up to the living pulp: or, reversing the order, from the first stages of hyperæmia he can diagnose to the point when decomposition has set in: but the application must be made to dentin and not to the enamel of the tooth.

Dr. Marshall. The subject is now open for general discussion.

Dr. F. E. Platt. I would like to mention one fact in connection with the discussion of this paper. In 1891, before the National Dental Association, at Niagara Falls, the Chairman of this Section, Dr. Marshall, read a paper on the application of the Faradic rurrent. So the subject is quite venerable and was considered so many years ago. I am sorry I have not a copy of the journal here so I might be more explicit about it.

Dr. Marshall. I am glad Dr. Platt made this remark, as I intended to say something on this subject myself today—only on just one phase of it—the detection of pulp conditions and the control of anæmia of the pulp. Perhaps I can do that best by relating a case in my own mouth. I have been experimenting with the galvanic and Faradic currents in pulp diseases for more than thirty years. When I went to Chicago to practice in 1882, I associated myself with Dr. W. W. Alport. In 1885, a filling dropped out of a right first bicuspid, that had been in place some five or six years, and when the filling came out the tooth was exceedingly sensitive. Dr. Alport examined it and said it would have to be devitalized. I said "No! Put in a gutta-percha filling," which he did. It went several months comfortably: then this filling dropped out and I had him treat it again. He flowed a little gutta-percha solution over the bottom of the cavity and filled with oxyphosphate cement. This was on a Saturday morning. Saturday night the tooth awakened me in the middle of the night and was very uncomfortable. It was not a real pulpitis, but a throbbing pain. I was much exercised, fearing I would lose the pulp of the tooth. I went to a half dozen offices down-town. I finally found Dr. Ames in his office. I told him the circumstances and asked him to do something for me. He treated it with carbolic acid and put in another gutta-percha filling. In a half hour after I reached home it began to tune up again. I had read up on electricity and gotten this fact: that the electro-therapeutist may produce hyperæmia on the surface of the body, or its opposite, by the galvanic current, depending on whether he used the positive or negative pole. The positive draws the blood out of the tissues and the negative draws it in. I went to see an electro-therapeutist in Chicago. I said, "Can you deplete that pulp?" He said, "Surely I can." He seated me and applied the electrode: I held the negative pole in my hand. In a half hour,

little by little the unpleasant feeling disappeared. I went home and had a good night. I reported on Monday morning and had twenty minutes of treatment. I went the third time for a twenty-minute treatment. The tooth was filled with gutta-percha and oxyphosphate.

In 1887, at the International Medical Congress, in Washington, we had a Section on Dentistry, and Dr. Roscoe Ludwig, of Chicago, gave a gold-foil clinic and selected me as his patient, and he filled that tooth for me with gold, contouring it beautifully and I still have the tooth vital in my mouth, with that same filling in it. I have not known any difference between that tooth and any other in my mouth. That proves the depletion or hyperæmia produced by the galvanic current. I had many patients in Chicago treated in this way, and saved their pulps alive.

I am against so much devitalization of pulps: the Lord put them there for a purpose and not to be taken out for crowns and bridges. The tooth is never healthy after the pulp has been taken out. The pulp was put there to nourish the tooth and keep it alive.

Dr. W. H. Geltson, Camden, N. J.

I am sorry I did not get here in time to hear this paper, but the discussion of Dr Marshall was very interesting to me. For many years I have used electricity in my practice and feel I could not get along without it. The galvanic current, in my experience has not been as important as the Faradic current. I have used the Faradic current and gotten the results Dr. Marshall speaks of. In the use of the galvanic current you must be more careful to prevent burning the tissues. I think there is a great advantage in the Faradic current, in that you can use such a mild current and secure better results than if you use a strong current for a shorter time. I have used it as long as an hour or an hour and a half at a time with very beneficial results, depleting inflammatory conditions, impossible to treat and reduce with medicaments.

I suffered intensely with neuritis in my right arm and had all kinds of medical treatment. Electricity was the only thing that did any good, using the Faradic current as Dr. Marshall described—the positive current where you wish to bring more blood to the part, or the negative current where you wished to deplete. I could go on and state many instances where I have gotten beneficial results, but it is hardly necessary.

Dr. Marshall.

In the use of the galvanic current you must use the milliampere-meter, as a living pulp will not bear more galvanic pressure than 1 5/10 milliamperes: beyond that it is painful. Never apply the galvanic current without the milliampere-meter and watch it carefully. You will do no harm otherwise.

Another point: if you allow your pole to slip on the tooth when the current is on, you get a shock which will undo all you have attempted to do by passing the galvanic current through that tooth. If you use the milliampere-meter for the galvanic current you will have no trouble with it. Make the application of the poles first and then gradually turn on the current, 1/10 milliampere at a time, up to the point where the patient cannot endure it, and if the pulp is congested you will be surprised to see how soon the disagreeable sensation will depart, and with three or four applications of that kind, provided the pulp is not infected from caries and micro-organisms, you will accomplish your purpose.

With regard to the Faradic current, it acts more like a massage than anything else: the short break of the current is like the pounding of the tissue as I am doing now (illustrating) and brings the blood into the parts very quickly. It is all right in paralysis, etc., where you want to stimulate. I never have succeeded in depleting with the Faradic current. We must use the galvanic current for that.

Dr. M. L. Green, Oakland. May I ask if depletion or stimulation applies to the pericementum as well as the pulp?

Dr. Marshall. Pericementas trouble is often an infection.

Dr. Green. I mean, for instance, soreness from over-malleting a gold filling.

Dr. Marshall. The galvanic current would be very advantageous there.

Dr. Geltson. Would you prefer the galvanic current to the Faradic current in tic-douloureux?

Dr. Marshall. I would not apply it at all in tic-douloureux. You only give the patient more pain.

Dr. Geltson. I have cured cases with the Faradic current.

Dr. Marshall. You want to get at the cause.

Dr. Geltson. It is hard to get at the cause of tic-douloureux.

Dr. Marshall. Yes. Sometimes patients suffer from sepsis. I have two cases now of tic-douloureux, which I know are the results of sepsis from bad teeth. I proved it in one case by taking out certain teeth. We now have the advantages of the X-rays. Now we find instead of the difficulty being in the ganglion it is in the peripheral end of the nerve. In cases of pyorrhea, blind abscesses, etc., the tic-douloureux is cured by extracting the offending teeth.

Dr. Geltson. I have seen cases of tic-douloureux where every tooth was extracted and then after severing the nerve and injections of osmic acid had been used, the Faradic current has effected a cause.

Dr. Marshall. I have not seen that.

Dr. J. R. Caughron. Speaking of tic-douloureux, I had a case a short time ago where all the teeth had been extracted, and still the patient suffered. I said there was a cause, and he said "I know there are no teeth there." On making a careful radiographic examination I noticed a small shadow in the region of the cuspid. I centered on a small film and found the bulk of the cuspid present. I used conductive anesthesia, and extracted the tooth. I had a report two weeks ago—fifteen weeks after the tooth was taken out. He is getting complete relief.

Dr. A. C. Wherry. Fellow Members of the Congress: The discussion has deviated far from the subject which I aimed to discuss, and to those who came in late I would like to say my paper had to do with the subject of electricity as an aid in diagnosing pathological conditions. I did not intend to discuss the subject of the therapeutic use of electricity in dentistry. Dr. Custer made one point I wish to impress upon you, and that is, thoroughness in the use of electricity as an aid to oral diagnosis. If we use our mouth lamps—our transilluminators or illuminating agents, or the X-rays in a haphazard way, they become agents of destruction, rather than aids to us in our work.

I offered this paper with the idea and the hope that many men would present ideas that they have found valuable from personal experience in ways not commonly recognized, and I regret we did not have some such suggestions. I thank you however, for the consideration the paper has received, and I hope some good will result from it.

Dr. Marshall. We will now listen to a paper to be presented by Dr. F. L. Platt, "Peridental Anesthesia—Intra-Osseous Method."*

Discussion of Dr. Platt's Paper.

Dr. Marshall. The gentlemen appointed to discuss this paper are Dr. Harry T. Carlton, Oakland, and Dr. Geo. N. Hein, of San Francisco. Dr. Carlton is not present.

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*See Vol. II. Page 141

Dr. Hein is also absent. The subject is open for general discussion. Dr. Platt will be glad to answer any questions on this subject.

Dr. Robt. Payne, Los Altos. Do you ever have nausea following these injections, Dr. Platt?

Dr. Platt. No, I have never had nausea. I have had some of the results of increased blood pressure on account of the use of the adrenalin in the ordinary novocain adrenalin preparations, but nothing serious. I have used it on people with angina, valvular heart disease, pulmonary trouble, and on patients aged from two years to eighty-nine. The danger of its use I think is practically nil.

Dr. A. D. Barber, Ogden, Utah. I would like to ask what form of anesthetic Dr. Platt uses and the dosage.

Dr. Platt. By preference, "Peritundo," manufactured here in San Francisco: it is adrenalin and novocain. There is 3/8 of a grain of novocain in every twenty minim solution and 1/1500 grain of adrenalin. I do not know that one preparation is superior to another. I have used this because it gives me results. It was brought to my attention by my friend Dr. Hein, who I think is ill. He spent several years developing the formula. It has not been changed in nine or ten years, and every other formula with which I am familiar has been changed. I believe it to be an excellent preparation, but novocain alone may be used in this manner. The antidote for novocain is alcohol, and so far as danger is concerned, if anyone collapses or becomes oppressed in respiration and the heart beat is increased greatly, one-half tablespoonful of whiskey in water will restore the individual. I usually inject a little more of the anesthetic in the event of unfavorable symptoms. It is a heart stimulant.

I saw Dr. Hein extract a third molar. The patient fainted from fear. He tipped the chair back and went on and injected ten or fifteen minims more and took out the tooth. The patient revived in a few seconds and said, "Did I faint away?" The Doctor said, "No, you just lost consciousness a few seconds while I took the tooth out." Several gentlemen said, "My God, Hein, I would have been scared to death." Hein said, "Go on, and give them a little more."

I have had but one patient faint. I asked him the trouble and he said, "I guess it was that little hammer that got my goat." He had reference to the tapping of the needle through the process. The main thing in the use of local anesthetics is not to be afraid. Know your

technique is right, your anesthetic is clean, instruments clean, and then go ahead and use it as much as you please. I have injected as much as twelve tablets (240 minims) of a two per cent. solution. There is no limit I think, to the amount that may be used. Novocain has yet to cause its first death so far as we know.

Dr. F. Freeburger, Portland, Ore. Is there any danger in injecting this in an anæmic person?

Dr. Platt. I have had no difficulty in cases of anæmia or plethora. I have used it in all ages and under all conditions and with all kinds of patients. I am going to extract three teeth for a man who may never get out of bed. It is a bad case of dilatation of the heart. He has vulvular heart trouble and Bright's disease, and I am going to use this anesthetic and extract these teeth so he will be more comfortable while he does live. I shall use about one-half of one per cent. solution and inject twenty-five or thirty minims, using it very slowly, but I have no anticipation of sending my friend into the hereafter any sooner than he would otherwise go.

Dr. Julio Endelman, Los Angeles. It has been my pleasure to see a number of the operations Dr. Platt has performed and I have never seen teeth more thoroughly anesthetized. There is, however, the personal equation in this matter, as in everything else, and Dr. Platt has developed a technique that would take the average man a number of years to acquire, though it is possible to acquire it. I would like to urge one thing: study the anatomy of the parts. Unless the operator is familiar with the topographical anatomy of the upper and lower jaw, positions of the teeth, thickness of the alveolar plates, etc., he may not meet with success. I think the essayist will allow me to emphasize this.

Dr. Platt is particularly successful I think, with hypersensitive teeth, and I have seen him operate where cervical cavities were so painful that it was almost impossible to touch them, and he was able to preform difficult operations without any pain whatever to the patient. I really believe his method a most successful one when used by a practitioner familiar with the anatomy of the jaws.

Dr. Platt. I would like to correct an impression given by Dr. Endelman. This is not "Dr. Platt's" method. I give the credit to Dr. Geo. N. Hein. I learned it from him. I think he originated the method of tapping the needle through the process. I have helped to develop the method a little, working with

him for seven or eight years. The method of drilling through the process is old, and has been used in Europe and England many years. I read an article five or six years ago by Maselink, of South Africa, in which he described the method. It was in use previous to that. Dr. Hein is the most successful user of local anesthetics it has ever been my pleasure to watch operate. He seems to have a peculiar instinct directing him to the exact point where the needle should be inserted.

Dr. Endelman brought up the point of studying the anatomy, and I may forstall some questions that may be asked. You will learn after some practice and observation, to know where the process is hard and dense and where soft and thin and easily penetrated. As I said in my paper, there are some cases where the gum is dense and thick and it blanches and turns white, and here you will usually find the process easy to penetrate. You will find it easy in young people also. In cases where heavy ridges mark the positions of the roots of the teeth, the process is thin, hard and difficult to penetrate. In cases where the gum slips over the tissue and you make a big "blub" of the anesthetic, you will find a hard process. In sixty per cent. of the cases it takes little pressure to penetrate the outer plate. Forty per cent. of the cases can be done with hand pressure. I suppose I use the drilling process in five per cent. of cases on which I operate. Not more than that.

Dr. Ward, Albany, Cal. What syringe do you use?

Dr. Platt. I use what is called the Peridental Syringe. The Jas. W. Edwards Company are the distributors. It complies with the requirements of my paper, and while extremely modest I may be excused in stating I helped devise it, doing away with the leather washers. Syringes that have packings that cannot be removed quickly are not desirable.

Dr. Ward. Do they furnish the needle to be used with it?

Dr. Platt. The manufacturers have some difficulty in making the needles. Edwards & Co. promise to have them out soon. A conical needle may be made by anyone by cutting off the ordinary needle and tapering down the reinforced portion to a slender cone.

Dr. Frank A. Voge, Portland. I would like to ask if any trouble is encountered where there is a large destruction of the alveolar process, as in pyorrhea?

Dr. Platt. The only point to be observed is to get below the point of destruction into sound tissue. Get outside the area of destruction; inject slowly, thus avoiding

shock; and you will also get a better anesthesia. In pyorrhea or necrosis, or where there are foci of infection around old abscess pus pockets at the ends of the roots of teeth—do not inject into diseased area. Get outside and infiltrate the tissues around it. A gentleman said yesterday, "I get good results by pushing the needle up alongside the root." That has been recommended in publications once or twice. It was advocated by Dr. Herman Prinz, and published in the *Brief* and illustrated there I think. I am sorry to say it is my firm conviction it is a crime, and any man advocating it publicly should not be looked on with enthusiasm by scientific members of the profession. We cannot sterilize thoroughly beneath the free margin of the gum. To deliberately push a hypodermic needle up along the side of the root is not proper practice. There is where you would get infection. If you are looking for trouble, do it that way. I am sorry to criticise Dr. Prinz, but I have said this to him personally. Never push the needle into a pyorrhea pocket, abscess, or under the gum and inject, unless you want to make trouble! In college one of the professors asked, "Why not squeeze a boil?" A student repled, "Because it hurts!" The scientific reason was on account of spreading infection into the surrounding tissue. We might as well load the syringe with pus! Never insert the needle except into tissue sterilized as well as you can sterilize it, and insert it in healthy tissue; not into diseased tissue.

Dr. Chas. L. Zeigler, San Francisco.

I listened to the paper of Dr. Platt with much interest. I was not aware that the subject was not understood in its entirety. I have used this method a number of years on the same lines as recommended by Dr. Platt, and I have listened to a previous speaker mention the technique connected with it. If he has frightened you regarding the technique, I would like, in a feeble way to correct the impression. I do not think there is much to fear if the operator knows the anatomy of the parts, and will follow the technique as laid down by Dr. Platt, which is very simple. There is nothing to intra-osseous anesthesia that is so difficult if you proceed on the lines recommended. Dr. Platt says he injects slowly, and while it may be a little hard because of the oppressive feeling, there is nothing to fear as regards any serious trouble, and I thoroughly recommend in my small way, the painless operations in dentistry secured through the use of the intra-osseous method.

Dr. Payne.

Have you ever used Dr. Fisher's nerve-blocking system, and are there any objections to it?

Dr. Platt.

No objections whatever, and I use it in connection with the intra-osseous method. In operations on the lower molar teeth particularly, such as the ex-

traction of difficult impacted teeth, to inject as Dr. Fisher recommends is an excellent procedure. Also in the upper molar region, but there is a loss of time. Five to twenty minutes required before operating. Wherever you can inject into the immediate vicinity of the roots of the teeth, practically as soon as you take the syringe out anesthesia is complete and lasting.

Dr. Fisher has added much to our knowledge of local anesthesia and his method is to be highly commended and should be learned by everyone and used in conjunction with this method. This method saves time, and there is a little less chance to alarm the patient than with the conductive method where you have to wait for results. I have used it in hundreds and hundreds of cases where the patient did not know when I made the injection. I have removed many pulps without the patient's knowledge. I sometimes tell them afterwards what has happened and sometimes I do not; it depends on the intelligence of the individual. I may say, "the pulp is removed, and there will be no further pain." If the patient flinches I make a sign to my nurse, and she gets the hypodermic ready for me. I use it in practically every case where any pain is inflicted.

Dr. L. S. Strickland, San Francisco. I have been treating a patient as well as I could and I have noticed that when I inject as far back as the bicuspid or molar, the patient may say, "the front teeth seem to be anesthetized." But I have never had the patient say the teeth back of the tooth injected felt numb. I have the idea the anesthesia travels forward and we must inject posterior to the tooth. Maybe there is something in this and maybe there is not.

Dr. Platt. You are correct.

Dr. Endelman. I would like, if you will permit, to correct a misunderstanding or a misapprehension. All conductive methods of anesthesia are credited almost entirely to Dr. Fisher. He deserves much credit and undoubtedly he has added to the literature and knowledge of local anesthesia as much as any man, but notwithstanding that the credit does not belong exclusively to him but to the father of local anesthesia. His name is Braun.

Dr. Robt. M. Morrow, Burlington, N. C. In case a patient presents with a badly swollen jaw, with impacted wisdom tooth, would you inject an anesthetic and extract at once? There might be other complications, such as sore throat, etc.

Dr. Platt. Yes. The sooner you get a tooth out of the mouth in such a case, the easier the patient will be. I have little sympathy with the dentist who refuses to

extract an impacted third molar or abscessed tooth under such conditions. You would not leave a bullet or a splinter in the body! I know the old-fashioned idea, not to extract a tooth until the pus discharges, etc. It is a bad theory. In the case of the impacted third molar, if you can open the mouth you can use a local anesthetic. If the mouth is closed and the muscles rigid, it is necessary to employ analgesia. Here you can use the mandibular puncture. Go back and inject on the inner side of the mandible at the mandibular foramen and anesthetize the nerve there; although I have removed many of these by the regular method of intra-osseous anesthesia, which I have described. If you start outside the area of inflammation and inject slowly, the tissue can be anesthetized and the tooth removed. I have removed dozens of them, even where the gum formed a pocket and infection had taken place. Use your antiseptic and atomizer freely. Thoroughly clean and curet the pus cavity, and in the case of the lower jaw it is better to pack the alveolus a few days.

Dr. Wherry. Did the essayist ever participate personally, in a case such as the one just discussed—I mean in his own mouth?

Dr. Platt. I have not.

Dr. Wherry. Fellow practitioners, I have, and I take issue with the essayist when he says you should not delay the removal of impacted wisdom teeth, with a pus condition present. A year ago I had broncho-pneumonia from infections received from such a cause, and as soon as I had sufficently recovered to undergo the ordeal I had the impacted wisdom tooth out, and I say to you it is a dangerous operation. Up to that time I had never known a spell of sickness to speak of at all; since that time I cannot endure anything. My system was wrecked by the infection that was driven through me, from top to bottom—by the nervous shock my system had to undergo in combatting the poison of that pus, and believe me, if the surgeon should handle a case of appendicitis in the advanced stage and practice that same procedure, human beings would be buried daily who are saved by a delayed operative procedure. If there is any way to relieve the patient and return the tissues to a normal condition, by all means do it, and when the vitality of the patient has returned to a normal condition and the systemic condition is such as to withstand the shock under normal conditions, then remove the impacted wisdom tooth.

Dr. Endelman. I was going to disagree with the essayist to begin with, and now I must disagree with him and with the gentleman who has discussed his paper. Cases cannot be treated on the wholesale basis. It is a case of judging whether to leave the cause of the trouble for a certain length of time or to allow

the patient to suffer the shock incidental to the removal of the tooth. The question has not been settled. It is debatable. You have a class of practitioners agreeing with one side of the proposition and another class with the other side. Some perform appendectomies by the old method—while the inflammation is at its highest point. Others prefer to wait until the inflammation can be counteracted. Therefore, I think it is a case of settling each case individually. Decide which is best: to remove the cause at once or wait until the infection has to some extent subsided. I do not believe all cases of appendicitis or infections of the abdominal viscera would end in death if operated on at the time of infection. I have seen case after case of appendicitis operated on when the abdomen was full of pus and the patients have recovered. Consequently to say all cases, if operated on when the infection is at its highest point, would die, is not true.

Dr. H. P. Emise, San Diego, Cal.

In going back to the discussion of our original subject I wish to say I had the pleasure of hearing the essayist speak on intra-osseous anesthesia some time ago, and at that time he had not used conductive anesthesia. The necessity for the dentist to familiarize himself with some method of painless dental work is increasing. In five years more I do not think anyone would think of doing a painful operation without an anesthetic any more than he would amputate a finger without an anestheic. We are deterred because of the fear of trouble or the possibilities of infection. In anesthetizing a patient to amputate a finger we run a risk, but no one would allow that to stand in the way of such a measure because of the slight risk.

I would like to ask Dr. Platt if he finds in conductive anesthesia that the tendency to syncope is reduced? This stands in the way of many practitioners, and any method which obviates that would have advantages. In my own experience in the use of intra-osseous as well as conductive anesthesia, the tendency to syncope is almost twenty per cent. greater with the former, and while the patient seldom loses consciousness, there is a blanching of tissues and a feeling of apprehension on the part of the patient. That is done away with in my experience with conductive anesthesia, to a great extent.

An interesting case in my own practice in the use of conductive anesthesia, was one where the anesthesia persisted for an undue length of time. It was in the case of the extraction of a wisdom tooth. I instructed the patient to use hot applications; hot water, with an antiseptic. The patient presented with a white slimy condition of the mucous surface on the left side, extending as far forward as the lateral, and including some of the cheek area. Catching hold of the white tissue and lift-

ing it up, I denuded quite a little portion. I never saw anything of the kind before, and in consultation we concluded the patient had cooked the face. She said she used the hot application—very hot—almost boiling. No bad results followed, but since that occurrence I have cautioned patients against the use of too hot applications: or at least to use the hot application on both sides, in order that the degree of heat may be determined.

Dr. Platt. I have not used conductive anesthesia enough to determine whether there is less tendency to syncope than with the intra-osseous method. I think the reason why syncope is manifested is rapid injection of the anesthetic. When you have reached the cancellous tissue it is so easy to inject the anesthetic and so little pressure is required, that you are apt to inject too rapidly. In the conductive method the instruction has been to go slow and inject very gradually. I do that in conductive anesthesia, and in the intra-osseous method one may go too rapidly.

Regarding hot applications. Following any method of inducing local anesthesia in the mouth, particularly if the tissues have been wounded, it is excellent to advise the patient to use hot salt water: one-quarter teaspoonful of salt in a glass of water. Use several glasses. This relaxes the tissues and gives much relief, particularly in third molar extractions.

This is a scientific body, making history for dentistry. Let us consign the "Wisdom teeth" and "Stomach teeth" to the limbo of exfoliated dental superstition! Let us call them third molars and cuspids!

Dr. H. E. Friesell, Pittsburgh. I think I might add a word or two in the hope that I may clear up a little of the situation. Perhaps I may be mistaken, and may only succeed in further confusing the issue. The reason I make this remark is, it is based on the fact that in experience I have found a considerable proportion of physicians and an unusual proportion of dentists who for some reason or other have the idea that it is bad practice and improper to extract a tooth that is abscessed, or to operate on an area where pus is present. There are two fundamental principles of surgery that I might recall at this moment. One of them is that the field of any operation should be rendered as nearly sterile as is practicable, and the second is that wherever pus is present it should be evacuated at the earliest possible moment. In the specific case mentioned by one of the speakers—the extraction of the impacted third molar during the period of active pus formation, it seems to me the problem before the operator is not whether he shall remove the pus or give vent to it (though that should be done under any circumstances); but the problem is, shall he go on at

that time and complete the surgical operation of removing the teeth? Personally I have seen many cases result seriously, brought about by the fear of the surgeon to operate because the teeth and jaw were in an abscessed condition. For long years the surgeons and medical profession have found the two principles I wish to impress upon you, to be absolutely correct: they are fundamental principles in surgery: a sterile field of operation, and when pus is present evacuate as soon as possible. Nature is trying to do that. It is your duty to assist Nature. If infection follows, then we must trace that infection to one of two things, either the fact that the operation has not been performed early enough, or there has been imperfect care during and after the operation.

Vice-Chairman. Are there any other discussions? If not, we will call on Dr. Platt to close the discussion.

Dr. Platt. I have very little more to add. We have discussed the question informally and very generally. I think we must agree with Dr. Friesell in his remarks and I thank him very much for his kind words, as I think they represent substantially my own views. We are governed by our clinical experience, and I think it a good plan to remove the irritant from the tissues as soon as it becomes an irritant. I remember in college twenty-six or twenty-seven years ago, Dr. Garretson had a formula he gave to the students. When a patient came into the clinic he asked: "What ails this patient, gentlemen? He has a disease. What is a disease? Any condition which controverts a condition of ease. What is the treatment? Remove the 'Dis!'" I think that good practice and try to remove the "Dis" whenever I can. If proper precautions are used in these cases of abscess or septic conditions of the lower third molars, where the pulp is not causing the abscess necessarily, and there is infection on account of the tooth, it is a good thing to remove the tooth as soon as possible. Have the area to be operated on as sterile as possible, and then remove the "Dis!" I think wherever pus is in the system anywhere, and in the light of recent knowledge—particularly in the oral cavity, the sooner we evacuate the pus and check this absorption the less trouble we are going to have from these terrible foci of infection which are so alarming the medical profession to-day.

Dr. Friesell. Calls for Dr. Reithmuller, of Philadelphia, and Dr. Towle, of Fall River, who were assigned to read papers in this Section. Both absent. Announcement was made that Section VIII would meet every morning during the Congress at 9:00 A. M.

September First.

The Chairman. We have four papers for the morning and the gentlemen are all here. Of course, you understand these papers are supposed to be limited to twenty minutes in their presentation to the section, but the papers will appear in full in the transactions.

The first paper is by Dr. Clarence O. Simpson, St. Louis, Missouri: "Some Prevalent Errors in the Esthetic and Technical Phases of Operative Practice."*

Discussion of Dr. Simpson's Paper.

Dr. John U. Conzett, Dubuque, Iowa. The paper of the essayist deserves the highest commendation and should be thoroughly studied by every student of operative dentistry, and while I cannot wholly indorse all that he has said, I want to congratulate him upon his able and fearless discussion of the subject. In the main I wholly commend his thoughts and in those things with which I take issue I do it in the spirit of scientific inquiry, and as a seeker for truth; both he and I will welcome any criticism that will the better bring out the truth and eliminate any error contained in his paper, or in my discussion thereof.

The dental profession stands in a very precarious position at the present time. The medical profession has discovered that in some cases there have been systemic disturbances, which have been traced to faulty dental operations.

This is not news to the thinking men of our profession for we have long recognized the fact that there were local foci in the mouths that might be the cause of serious systemic disturbances, and the writing of the men of the dental profession have been replete with warnings.

The discusser of this paper has upon several instances called attention to cases which have come under his observation where the removal of the oral foci has eliminated the systemic disturbances. But the medical profession refused to pay any serious attention to the dangers from mouth infection until their attention was called to it by one of

*See Vol. II. Page 288.

their own number, when they swallowed whole the bait, hook and line, and now every physician who is unable to diagnose a case that comes to him decides that something is the matter with the teeth. If the patient has a pulpless tooth in the mouth it is immediately under suspicion. A radiograph is made and whether anything is the matter or not an interpretation is frequently read into the picture and the tooth is sacrificed.

This is well as far as it goes, for it is what we have been hoping for for a long time. We welcome the attention of the medical profession to a careful study of the mouth and teeth, but we trust that it will be done in a scientific and honest manner.

This *is* the way that the problem is being attacked by the better men of the medical profession, I am glad to say, and it is only the "back numbers" that we will have to fear; but they are legion, and as they have the confidence of the public, this places the dental profession upon the defensive in every case in which the doctor reads into a case of faulty root canal filling, some other infectious condition that he says has been the result of the faulty dental operation. The result in the end will be for the best interest of the dental profession, for it will make every dentist more careful and force men to use every aseptic precaution in their operations—a result that is most devoutly to be hoped for.

In the meantime we will have to know our case, be sure that we are right, become conversant with radiographic interpretation, and in case of doubt throw the onus upon the physician and tell the patient that we are willing to remove the tooth if the physician demands it. Then if the systemic disturbance is thereby removed, he will be ready to say that the cause was there, but if the systemic effect is not removed the error will be thrown back upon the physician.

If this is done the doctor will be more careful in his diagnosis and in the future will be more ready to consult with the dentist and profit by his advice.

I make these remarks not for the many grand men in the medical profession, who are earnestly and honestly seeking to benefit their patients and humanity in every way, and who are the first to see and deprecate the methods of the ignorant and dishonest in their own ranks, but for those that have hit upon this new thought, and who, because they have not the ability to differentiate, think that every case is a result of faulty oral condition.

In the end this discussion is going to make for a larger and better dentistry and we should welcome it and study to place ourselves where we will be able to take our place beside the physician in the grand work of the alleviation of the ills that are the heritage of the human race.

Extraction of Teeth.

We can only do this by recognizing the truth of the fact that oral infections are a prolific and malignant cause of systemic diseases and study how best to prevent their occurrence, and how to recognize them when present and then how best to eradicate them.

I am not at all in sympathy with the thought that every pulpless tooth shall be sacrified to the forceps; neither am I yet ready to agree that every abscessed tooth shall be removed, for I think that I have demonstrated in my own practice enough to satisfy me that teeth that have been the seat of infectious processes can be cured and be made useful members of the masticatory apparatus.

Prophylaxis.

I wish most heartily to commend the thought that we will have to work toward the end of establishing a prophylaxis propaganda of such proportions that every child would be compelled to come under the observation of the dentist at the beginning of dentition and then at such frequent intervals as shall prevent any serious disturbances of the teeth or gums. In that way all necessity for pulp operations will be obviated and the danger of oral infections will be overcome. School inspection and the free dispensary must come. It may not be in our day as a general proposition, but as Dr. Wiley has so frequently said, the school door should be guarded by a physician and a dentist and no child that is defective should be permitted to enter until the defect is eliminated.

Frequent Examinations of Dentists Recommended.

The prevalence of faulty operations is a truth that we wish were not necessary to emphasize, but the truth compels the endorsement of all that the doctor has said upon this subject, and the remedy lies in the hands of the school and examining authorities; nay, I would go a step farther, for in the light of my observations, I know that men who were capable of better things when they passed the school and board authorities, have degenerated in practice to so marked a degree that they have become incapable of performing a decent operation after they had been out of college ten years.

As a remedy for such laziness and criminal indifference, I would like to see a law go into effect that would compel the dentist to pass an examination every five years to test his ability to properly minister to the ills of humanity from a dental standpoint. (Applause.)

And if he were found to have degenerated below the standard of safe efficiency, his license should be revoked until such time as he would properly equip himself to safely minister to his patients. If this were done we would have less of professional degeneracy and more of professional advancement.

Commercial Salesman at Educators.

Time will not permit discussion of the various points brought out, but with the essayist we can only deprecate the "wild cat" enthusiasm engendered by every seemingly new thought that is fostered by someone at so much per, only to find in the end the oblivion of exploded theories and a lot of junk as a result of the splendid efforts of the educational salesman, who knows as much about dentistry as the dentist does about business, and yet who sets himself up as the teacher of the dentist in things professional, with the result of filling the dentist's junk heap with refuse and his employer's pocket with the dentist's money. The remedy lies in a proper education of the profession and an endorsement of the new things by some authority appointed by the dentist himself. If I might be allowed to digress for a minute, I would like to say that such an authority has now been elected and the Original Research Foundation of the National Dental Association is ready to attack these problems, and is doing so with the best talent available in the profession and out of it, and we as a profession should give them the assistance of our money and our influence, that the highest good may be accomplished along every line of scientific endeavor as it relates to the problems of dentistry.

Need of the Rubber Dam.

I cannot pass the paragraph on "tendency to do away with the rubber dam" without a word. I have not yet passed the time when I care to give up gold foil and, of course, I use the dam in all such cases, but I do want to urge, with all the power of my influence, the necessity of the rubber dam in the treatment of pulpless teeth.

You may express surprise at the placing of emphasis at this point, for you will say, "Does not everybody use the dam in treatment cases?" No, they do not, and shame to say it, some men of national prominence are still at the "cotton and sadarac and come in again tomorrow" stage of pulp canal treatment. I believe that the most prolific cause of root canal infection with its attendant train of apical abscess and consequent constitutional disturbance, is directly traceable to the treatment and filling of root canals without the precaution of placing the rubber dam.

I venture the assertion that it is impossible to aseptically fill a root canal without the rubber dam, and I believe that the dentist that does so is guilty of malpractice and is daily bringing his profession into disrepute by the results that follow in the train of his careless methods. I would like to see the National Association go on record as refusing to uphold any man that would be guilty of any such negligence, and in case of a suit for malpractice such a fact would be prima facie evidence

of the dentist's culpability; for it is just such practice that is now bringing the profession into disrepute with the best men of the medical profession, for the statement is often made that dentists know nothing of aseptic methods

Cavity Preparation.

The only points of difference between the essayist and the discusser in cavity preparation are in the depth of the cavity and the objection which he makes to the flat seat, and perhaps these differences are more a matter of difference of definition than of fact.

We must be careful not to endanger the pulp, it is true, but the cutting of a step only one millimeter in depth in a cavity where there is any stress at all is to invite failure, for in the first place you would not have sufficient frictional resistance to enable the inlay to sufficiently grasp the walls of the cavity to prevent displacement; and in the second place, you would not have a sufficient body of gold to resist the forces of mastication without flowing.

The greater part of the failures that I have studied have been caused by a too shallow cavity preparation and the pulp irritations caused by a deeper preparation have been negligible, if the proper toilet of the cavity has been carried out, as the essayist has so splendidly emphasized. More pulp complications are caused in inlay work by sealing in gutta-percha over infected dentin and cavities containing the remains of saliva and mucous, than is caused by the depth of the cavity, unless the depth is beyond all reason.

I would advise cutting to the depth of one and a half millimeters in all step cavities, and if the stress was exceptionally great I would not hesitate to make it two or two and a half millimeters in molar restoration. In this, as in all other operations that we make, we must study conditions, and then use our judgment as to the depth that any cavity should be cut; but it has been my observation that the average man errs in cutting his cavities too shallow rather than too deep.

A flat seat is the strongest foundation that we can give to a filling or inlay, and in all cases of great stress the flatter the seat the firmer will be the resistance to stress.

If we study the anatomy of the gingivæ we will see that while there is a decided curve of the gingival line in the region of the incisors, making a decided festoon of the septal tissue and a corresponding curve of the cemento-enamel junction, as we approach the bicuspids and molars this curve is very much less and in the molars the gingival line is almost straight around the teeth, so that in the region of great steps the argument of the essayist does not hold good, for here, by reason of the gingival line not running far up on the approximal surface of the tooth, the

making of the flat gingival seat can be accomplished without injury to the septal tissue and still carry the bucco and linguo-gingival angles out far enough and deep enough to place them in immune territory.

In the incisor region, where the gingival curve is very marked, his point is well taken and is the method we teach, for here there is little stress upon a filling placed in the approximal surface of the tooth.

The science of operative dentistry, or the saving of teeth from the ravages of decay, is one of the greatest studies to which a man can give his time, and all of the light and experience that we can obtain from such observes as the essayist should be eagerly studied by every man interested in the greatest phase of modern dentistry, for if we properly fill the teeth as they come to us with the beginnings of decay, there will be no need for crowns, bridges, and, except in old age, no need for plates.

The Chairman. Before we go any farther with this discussion of this subject, I would like to read this telegram, which will cast a gloom over the exercises of this section, I am sure.

I hold in my hand a telegram from young Dr. Black, saying that his father passed away yesterday afternoon in his little bungalow on the farm; that he died of acute pernicious anemia.

I read sometime ago of a certain French soldier who had been wounded in the chest. He belonged to the Army of the First Napoleon, and while the doctor was probing for the bullet he looked up into the eyes of the surgeon and said: "Doctor, if you go a little farther you will find the Emperor."

I think that is true of Prof. Black. He is in the heart of every dentist all over the world. No man has ever done so much for dentistry as has Prof. Black.

Dr. Friesell. Mr. Chairman, it is one of the saddest duties that has ever come to me to be placed in the position of making this motion. Only those of you who have known Prof. Black intimately, who have had the pleasure and the opportunity of sitting at his feet in wonder and admiration for his qualities as a scientist, for his qualities as a man, can appreciate how those of us who have known him intimately feel at this time. Of course, we have been expecting this and have made it a point—I have—never to go through Chicago without stopping a few hours to see him, feeling that that might be the last time that I would ever grasp the hand of the greatest man that I would probably have the opportunity of knowing; not only the greatest dentist; not only the greatest scientist; but a man who was so great that few men on the face of the earth at the same time could approach his greatness.

I saw him only a couple of months ago and recognized at the time, as I looked into his face, the transparent condition that precedes very closely the end.

Mr. Chairman, I move that it be the sense of this Section on Operative Dentistry, in which Prof. G. V. Black has done so much of his magnificent work, that this section request the Panama-Pacific Dental Congress to appoint a committee to take suitable action—whatever it may consider best for that action to be—in regard to Prof. Black's death.

(Motion seconded and unanimously carried.)

Dr. Wm. D. Tracy, New York

Mr. Chairman, Ladies and Gentlemen: Dr. Simpson's essay on "Some Prevalent Errors in the Technical Phases of Operative Practice" is an interesting and valuable contribution, and it is not likely that anyone will disagree with the main points of the paper.

All those dentists who may be regarded as representative members of their profession have a definite standard, or a fixed ideal as to what modern dentistry should be. They have well defined ideas as to what the accomplishments or achievements of the individual practitioner should be; what the relation of dentists and dentistry to the public should be; what the relation of dentistry to medicine should be, and so on.

Dr. Simpson's arraignment of those members of our profession who practice operative dentistry shows that he is a man of high ideals, and that he seeks to inspire others to more careful thought and the achievement of better results in their operations; results that will check up fairly well with our present knowledge and understanding of the relation of the teeth to the general health of the individual.

There was a time when the dentists seemed to feel that their task was to deal with the teeth as individual organs, and I doubt not that there are many who have the same view today and who do not realize that it is the restoration and preservation of the entire masticatory outfit and the contiguous parts, in a condition of health and efficiency which constitutes the real task. But there are also some people living today who think the Centennial of 1876 is still in session!

Dr. Simpson estimates that probably only twenty per cent. of the dentists of our country are performing operations which would qualify them as capable and deserving of the responsibility with which they are entrusted. It is safe to say that this is a liberal estimate, but I believe the average of proficiency is no lower in our profession than it is in medicine and surgery, or in law, or in theology.

We are not proud of the fact that eighty per cent. of our practitioners are men of only mediocre attainments, and we realize to our

sorrow that many uneducated and commercially inclined individuals are graduating into our ranks every year, but there are, at the same time, enough men of professional instinct and large ability and high ideals to maintain the leaven in the loaf.

While we shall probably always have our "amphibious" and our "submerged" element with which to reckon, we may reasonably hope that, as the course leading to the dental degree is lengthened, and as the requirements for entrance to the institutions of dental learning are made more exacting, the dentists themselves will be men of larger mentality.

The essayist deplores the fact that dentists, as a class, are too oscillating for their own welfare and that of the profession, and I presume that he is quite right about it on the whole. It is my opinion, however, that the man who cannot oscillate about a little is going to become so badly ankylosed that he will eventually die of dry rot. I would much rather note a man's willingness to suffer inconveniences and expense in order to try out a new method or device which apparently has something to recommend it, than I would to observe on his part a smug complacency which prompts him to argue that he has "practiced dentistry for twenty years without it," and, therefore, does not need to even try the new device.

The facts mentioned in the paragraph dealing with the rubber dam are incontrovertible, and special emphasis may wisely be placed upon the necessity of using the rubber on all pulpless teeth when under treatment.

Cast Gold Inlays.

The bugaboo of pulp irritation that was so much talked about in 1907 and 1908, when cast gold inlays came into vogue, has not materialized, according to my observation. In fact, I have seen fewer inflamed pulps under gold inlays than I used to see under amalgam fillings. One reason for this is that in inlay work the average operator is apt to carry out the procedure of cavity preparation with more care and greater thoroughness than he would for amalgam fillings.

In discussing the status of the casting process, Dr. Simpson calls our attention to the large number of poorly fitted inlays that one constantly sees, and then later admits that his criticism of cast gold inlays does not apply to operations properly conceived and properly executed. Thus the criticism is not of the gold inlay, but of those who misuse and maltreat it, and it is only natural to expect that those operators who insert slovenly fillings of amalgam and ill-shaped and poorly adapted gold foil fillings, would also put in badly fitted cast inlays.

Like all other innovations in dentistry, the casting process has been overdone and abused, but as the careful and intelligent operator has,

through study and observation, learned its limitations, the process is assuming the permanent place of importance which it justly deserves as one of the most valuable methods of working gold that has ever been introduced to the dental profession.

Prof. Black's System of Cavity Preparation.

While the Black system of cavity preparation is known wherever dental literature is read, it is surprising to note how few men really adhere to the principles propounded by Professor Black. Some operators who have not accepted all the details of the teaching along this line have modified their old ideas considerably and have largely improved their technique in so doing.

Dr. Simpson's suggestion that the gingival wall of the compound approximal cavity should conform in shape to the general line of the gum septum is good in theory, but, if I understand the proposition as put in the essay, its application would be limited to comparatively few cavities. In other words, cavities where this refinement in detail of technique could be applied, are the exception rather than the rule.

Restoration of occlusal form is one of the most important details in any filling procedure that involves the occlusal surfaces of the teeth, and Dr. Simpson has covered the subject so well that there is no opportunity for argument, and elaboration is certainly unnecessary.

Silicate Cements.

Commenting on the silicate cements, I would say at the outset that it is a great pity that a material of so much merit and such great possibilities should have fallen into such disfavor through wanton abuse at the hands of operators, whose intelligence and good judgment should have restrained them in their misuse of it.

Mouths have been under my observation where it was evident that some dentist who inserted compound fillings of silicate cement throughout the bicuspid and molar regions had really expected that those fillings would withstand the stress of mastication. Applied in the class of cavities mentioned above, the material is a delusion and a snare, and in dealing with these restorations we have to grant that practical dynamics must be considered before fanciful esthetics.

In the first place, the technique of properly mixing and manipulating any of the popular silicate cements is a matter requiring great care and a fine understanding, and it is safe to say, if one may judge from clinical observation, that a great majority of silicate cement fillings are poorly mixed and carelessly inserted.

But, even if they were inserted under the most favorable circumstances, it is irrational to expect a material so friable and brittle to withstand the stress of mastication for any length of time.

Many small approximal cavities in anterior teeth and many cervical cavities, also, can be beautifully and lastingly filled with silicate cements, and to these uses the material should be largely restricted.

This essay of Dr. Simpson's is a valuable and stimulating appeal to the individual to think for himself, to take advantage of the opportunities that surround him for broader and better development, and, through attention to detail, to cultivate a higher degree of proficiency.

Dr. Simpson. Mr. Chairman, Ladies and Gentlemen: I thank you for the kind reception you have given this paper. I am sorry that we could not have had more time for discussion upon the matter.

I do not believe that Dr. Conzett and myself differ much in the methods we have adopted, but I have been hammering away upon friends of theirs to get them to consider this one point in question.

As I mentioned in the paper, it is rare that we ever have a straight gingival border. Frequently, from a loss of tooth structure, you have a marked absorption of gum tissue, and it does not seem to me proper to place a straight gingival margin, unprotected at some points by gum, or too deep under the gingival at other points.

I believe that a gingival margin should conform in some degree to the form of the gum tissue in the particular locality.

In removing gold shell crowns which have been in position for some time, you can look at the mark of the gum line, the area where discoloration has occurred along the gingival margin, and you rarely see one of those lines straight.

The septal tissues there do protect gingival fillings; the septal tissues are capable of being pressed aside, but there is no occasion to go under that septal tissue to the degree that is sometimes done to carry the gingival margin across labal and lingual angle.

I recognize the fact that in shaping the gingival seat it is mechanically correct to have it flat, but there has been too much mechanics in dentistry, anyway, and not enough rational consideration of these points, and, in spite of the eminent counsel from these gentlemen, I insist that the outline of the gingival seat should conform in a degree with the outline of the gingiva.

There have not been other points under discussion, so that will close the discussion.

The next paper was read by Dr. M. J. Congdon, Berkeley, Cal., and was entitled "The Plantation of Teeth."*

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*See Vol. II. Page 295.

Discussion of Dr. Congdon's Paper.

Dr. Thayer Rhodes, Berkeley, Cal.

Mr. President, Ladies and Gentlemen: To my mind the keynote of the essayist's interesting discourse is embodied in these words: "The operation was attempted by many under varying circumstances and conditions and with varying degrees of success."

When we can grasp and apply some favorable combination of circumstances, possibly good physical tone for the patient, aseptic procedure and technique on the part of the operator, we no doubt will have such a percentage of successful operations that the procedure will be accepted as a rational one, at least, in cases where other lines of treatment have proven ineffectual. If, in some instances, we get a reunion or attachment of tissue of some sort, why will not the same forces combine to give the same results in other instances? For, had Darius Green's attempted aerial flights been crowned with occasional success it would have demonstrated the attainment of a certain degree of skill and would have proven the possibility of complete success under proper conditions. His efforts would have been received with less incredulity and derision. People would have said, "If he has succeeded in flying fifty feet, why can he not, by a better understanding and application of the principles, fly a hundred feet; and if a hundred feet, has he not proven that there is a combination of circumstances and conditions that go to make the successful flight"?

Like the essayist, I believe that the successful transplantation and implantation, especially of human dental tissue, can only follow a more comprehensive understanding of the subject of replantation, if at all.

To those of you who would do things, do not consider the arguments of those who say, "It can't be done"; or, who select a failure and hold it up as the probable outcome of every operation.

Just what the nature of the reunion may be—ankylosis or a normal reattachment of the cells to the pericemental membrane—is, in my present state of mind, a conjecture. As the essayist states, a post-mortem examination of many teeth replanted, transplanted and implanted, under various recorded conditions, will divulge the nature of the attachment, and fortunate is the man who can, at some time, carefully work out a solution of, and throw more light upon these problems in this way.

Dr. E. M. Harwood, Los Angeles.

I suppose we are here for information, and I want to get a little, if I can. I have had turned over to my charge a number of cases from the railroad—accidents of various kinds from the hospital—and a great many times the replantation of teeth has seemed

advisable, and in a great many cases that has been successful, though in some cases there has been rapid resorption.

I would like to ask if there are any suggestions as to how to prevent the resorption of the root?

Dr. Wm. F. Freble, Portland, Ore.

I have had a number of experiences in replantation. One particular case recurs to me: An upper lateral, carrying a Logan crown. There was an abscess present. I removed the crown and found that the previous operator had made a labial opening through the root. I removed the root and sterilized the socket, packed it with gauze and Parke, Davis & Company's No. 51 adrenalin cocaine. In the meantime I found the apex of the teeth curved toward the mesial. I bevelled it off—the rough edges, and at the same time cemented in a temporary crown, so as to have something to ligate to in replanting the root. In the meantime I kept the tooth in a forty-five per cent. solution of alcohol. Replanted the tooth painlessly on account of the adrenalin cocaine, and pressed it up into place; ligated it to the two proximating teeth and instructed the patient if she was in any way uncomfortable, to come in immediately, and if she did not feel uncomfortable to come back in a week. In a week she returned; said she had been perfectly comfortable and the tooth was still loose a bit, so I instructed her to come back in a week if she was perfectly comfortable—making it two weeks in all. In two weeks she returned and the tooth was ready for the porcelain crown. That is two years ago and she has been wearing it ever since with perfect success.

Dr. H. P. Dennis, San Deigo, Cal.

In regard to implantation and its practicability to every-day practice: I believe there has been a method overlooked in its application to bridgework—the implantation of porcelain roots, based upon being introduced into the sockets of recently extracted teeth—rather than the accepted practice of waiting until there has been a healing of these sockets and consequent absorption of gum tissue, and the placing of the facings on the labial aspect gum margin. I do not know that that is a matter in general practice. I have seen but one case, with a history of ten years, where a porcelain dummy and root had been inserted in the socket of a recently extracted tooth as described, and was held in place in the usual manner by adjoining abutments. There had been a complete tightening of the gum tissues about this porcelain, obtaining an absence of the usual absorption of gum tissue. The soft tissues in the region of the inserted porcelain root seemed to be perfectly normal and healthy in all particulars.

Dr. E. A. Tripp, Salt Lake City.

I have been much interested in this paper and its discussion, because I have had occasion many times to meet just such conditions as presented here, especially replantation.

I think I have succeeded in accomplishing many successful results. I have a patient now in the city, a young boy, who met with an accident. At the time, he was only about eight years of age. He was struck in the mouth and both incisors were knocked out. The labial alveolar process was loosened. These teeth were not properly formed. The pulp canals were very large and the teeth were lost for several days. The child came to me immediately after the accident with the parent, and I sent them back to find the teeth. They succeeded in finding one, but the other was not discovered for three or four days.

I packed the socket, however, with aseptic gauze, hoping that they would find these teeth. Finally they did find them about the third day. The accident occurred on Saturday and the following Thursday I replanted the teeth, but before doing so I ground off the ends of the roots, which were very feathery, took out the pulps, filled with oxychloride of zinc and made a small gold inlay and inserted it in the apex of each root, being careful to put a solution of chlora percha between that and the inlay. I held the teeth in position by dummy crowns from the laterals with a strip of gold over the centrals.

In a couple of weeks I removed this and today I do not think anyone would know those teeth had ever been lost. They are in perfect condition, of perfect color, and I have a doubt in my mind as to whether there will ever be any absorption of those roots.

Dr. Whitney, Honolulu.

I have the distinction of being the first person that Dr. Younger operated upon, in '85, I think, with the use of cocaine. He implanted a tooth for me at that time, while cocaine was used. I remember they stated they used a twenty-five per cent. solution of cocaine. (Laughter.)

I know that I had no pain whatever, and that tooth was very comfortable for four years. It was then absorbed and lost. But up to that time I enjoyed it immensely.

Dr. Congdon.

The first speaker, I think, asked if there is any way of preventing the resorption of the root. In answer to that I would say that some of the earliest writers complain that in many cases the roots were resorbed, while you will notice that Dr. Neuman of Berlin, says that the root is seldom absorbed.

I think the difference lies in the different methods used by the two men, to which I called attention in my paper. I do not intend to say that anyone can say that in none of the cases of replantation in his practice is the root resorbed. Everybody finds occasional cases of that kind. If we knew just what caused it, we would be in a position to avoid that trouble, but we do not know just what causes it. I believe, personally, that if we get this vital union of the cells, or regrowth, reattachment, vital attachment, such as when you get your finger cut and put the two edges together; in other words, a surgical reunion, I do not believe that root will be resorbed.

One of the speakers spoke about a case where the root had been punctured. I think that is one of the cases which would justify an attempted replantation. We all come across those cases occasionally, and they are very difficult cases to deal with, particularly if the root has been punctured at a considerable distance from the gingiva. They are very difficult indeed to handle, and oftentimes we have extracted those teeth and resorted to bridge work.

I have some plates on display; some radiographs made by Mr. Ansel, of Oakland, one showing a patient (not mine), but where the root of a molar tooth was punctured. This tooth was extracted and replanted and the radiograph was taken more than a year after the replantation and shows a perfectly healthy condition. I think that would be one of the cases where replantation would be justified.

The use of drugs has been mentioned,—one case a forty-five per cent. alcohol solution, which, while that case was relieved, the gentlemen did not state whether that condition ankylosed or whether it was the reattachment of the soft tissues. I should rather be inclined to think that that would result in the death of those cells; using as strong an alcoholic solution as that—and I should look in that case for an ankylosis or a bony attachment rather than an attachment of the soft tissues.

I think that the modern tendency is to preserve the life of the tissues in every way possible.

I do not advocate the removal of the pericemental membrane. If we are to be really successful—to get a vital reattachment of the soft tissues, we must preserve that.

The next paper was read by Dr. R. B. Giffen of Sacramento, Cal.. and was entitled "The Sharpening of Hand Instruments."*

*See Vol. II. Page 314.

Discussion of Dr. Giffen's Paper.

Dr. C. F. Jarvis, Oakland, Cal.

After reading Dr. Giffen's paper I do not think that I can do anything but heartily commend it to your attention.

There are, I think, very few dentists that will grasp what he has told you. You cannot do it by hearing the paper but once. I hope that every one of you will study this paper when it comes to your attention in the transactions. This means much to dentistry. Never before have we had a paper on this subject, dealt with as he has. It means the laying aside of burrs for most of your operating. Nearly all of your work will be done by hand instruments. It is marking a step in dentistry that has never been touched upon before. He is establishing an angle for every instrument that is as definite as anything we have ever had in dentistry. Be sure and read what he has told you. It is most important at this time.

Most of the papers that we see in our journals are simply a rehash of what has gone before. Read all of your journals and you seldom get a new idea. This is entirely new. It is one of the forward steps that we are to make in this Congress.

I doubt if you can appreciate what this means, unless you see an instrument that has a proper angle and compare it with one such as is usually sold to you by most of the manufacturers. Seldom are the instruments that are given to us by the factories, ready for cutting. You must first put them on your stone before they will cut properly. If you will examine them under the microscope, you will find that you cannot get a perfect edge on them. Nearly all of them have either a wrong angle or else there is a wire edge, spoiling it for you.

Someone has said after trying one of these instruments, that dentin cuts like cheese. It certainly does.

Dr. Garrett Newkirk, Pasadena, Cal.

It takes a crank, perhaps, to discuss a question with enthusiasm and I have been a crank for many years on the use of sharp instruments. I remember when I was a boy, saying to a carpenter who was at work at our house: "It seems to me, Mr. Jones, that you spend a lot of time sharpening your instruments." He said: "Young man, I want you to understand that the most profitable way for a mechanic to spend time is in sharpening his tools." And I have found that to be true in dentistry.

It is an every-day momentous thing in our practice to have sharp instruments. Dr. Cushing was a specialist on sharp instruments, and one thing he insisted upon was having a large, fine Arkansas stone; that requires an investment of a dollar or two, but it lasts a lifetime. The ordinary stones we have are too small. Look at one after it has been in use a while, and you will see that it is hollowed out. I venture to say not three men in this audience have a good, level, large stone to sharpen instruments on. You cannot get along without it.

We have a three-cornered scaler, with a sharp point that we often use. A "scraper," you might call it. Nearly anyone in sharpening an instrument will sharpen it on the side. The way to sharpen it is on the under side toward the handle. If you cannot do it properly on your Arkansas stone, you can with proper practice, oftentimes do it nearly correctly with a stone and an engine, but sharpen it on the under side; it throws the steel toward the cutting edge in that way, and it will take hold. I make nearly all my own scalers and excavators. They are practically spoon-shaped. I sent Dr. Johnson half a dozen or so not long ago. He says he cannot get along without them.

Dr. Fred Hart, San Francisco.

I think possibly that Dr. Giffen, in his recommendation of an appliance to mechanically sharpen the instruments we use, and suggesting that we have many duplicates, so that as we use an instrument and cast it aside and take another, is not to be entirely accepted.

Prof. Black has said, in his text-book (which is meant for students taking up dentistry, as well as for the profession), that the student who cannot, or will not, learn to sharpen his instruments, should better give up studying dentistry and not take up the time of the profession.

I think that it is well to keep that not only before the students, but before the man in general practice, because most of the gentlemen have very poor equipment for sharpening their instruments.

I was inspired to speak particularly, on hearing Dr. Newkirk, because at my meeting with Dr. Newkirk several years ago, one thing that he said was this: "If a young man comes into my office and wants employment to do anything in my office, I ask him to let me see his jackknife, and if that is sharp I say to myself, 'He will make a good dentist'; but if it is dull I would not recommend him."

I think that is one of the things that impressed me in meeting Dr. Newkirk, and I have remembered it, and his name in connection with it.

Dr. Newkirk. Don't forget the big stone.

Dr. Giffen. As Dr. Hart says, it takes a radical to get some of the conservatives up to the least degree of proficiency. The dentist is the only man that I know of that uses his tools as they come from the manufacturer. He does not attempt to sharpen his tools, particularly. They do not attempt to put any extra edge on them in the shops. Now, all carpenters' tools have to be ground before they are ready for use. An examination of the offices of dentists will show a very decided need for more attention to the sharpening of their instruments.

Dr. Hart would be excepted, possibly, because he is somewhat of a crank on the sharp instrument himself, but the hand instruments of the average man are certainly a disgrace to dentistry.

I do not believe in trying to sharpen at the chair, because of the time it takes to have your instruments properly sharpened. This machine is built in such a way that my assistants sharpen the instrument better than I can by hand; so that this machine has eliminated one of my troubles. Before I had the machine I had to spend from fifteen minutes to an hour every day in sharpening instruments. Now, if you take that out of the operating time, it looks like a waste of time, particularly when you can turn it over to your assistant and have her do it better than you can.

The Chairman. Dr. Black's paper is here, and the question arose whether it should be read or not, under the circumstance. We have decided, however, that Dr. Black had put a good deal of time upon that paper, and it is an exceedingly important one and should be read. I believe the rule is, when a paper is in the hands of the Chairman and the essayist is not present, that it shall be read by title. I should feel very badly, indeed, to have Dr. Black's paper read by title.

Tomorrow there will be a paper that can be read by title because the gentleman is not here. It could be read by title and in its place Dr. Black's paper could be read.

I am giving you this information to get you to say, as a Section, whether we shall hear Dr. Black's paper tomorrow or read it by title.

Dr. Griffen. In view of the fact that Dr. Black came out to San Francisco and was here and was unfortunately called home, I think it will be a matter of courtesy to follow the procedure you have suggested.

Motion stated, seconded and carried.

Adjourned.

September Second.

Dr. Marshall. Ladies and Gentlemen: The first paper of the morning is to be read by Dr. F. W. Bliss, of Santa Cruz.

Dr. F. W. Bliss. Dr. Bliss read his paper entitled, "Non-Cohesive Gold Fillings."*

Discussion of Dr. Bliss's Paper.

Dr. R. W Rule, Oakland, Cal. Dr. Bliss has given us an interesting paper on the subject of non-cohesive gold foil, and I think one of the most important remarks he made was regarding the tendency to discard old methods and take up new. Very often the new are adopted before they are tested out and proven to be valuable, and things which have been positively proven to be valuable are laid aside. In that I think the profession makes a distinct failure.

Dentistry is a history of new things eagerly grasped—their lives quickly lived and laid on the shelf. Even the inlay, which has supplanted the use of foil in the offices of many men, is destined, as a general method of procedure, to be laid on the shelf. Many of the better practitioners of dentistry are realizing that inlays can never replace gold foil as a method of preserving and restoring the teeth. Non-cohesive gold foil plays a very important part in this work. My own method is the same as that of a good many who are using foil—a combination of non-cohesive and cohesive foil. In many cavities which are four-walled, non-cohesive gold can be used to advantage, although personally I use a large proportion of the non-cohesive gold and lock it into place with the use of some cohesive gold foil. In cavities involving approximal surfaces (four-walled) non-cohesive foil is used in the gingival portion in combination with the cohesive. The latter is almost necessary here to produce an operation to withstand the stress to be put upon it in such classes of cavities. But the fact that non-cohesive foil is destined to still live in dentistry is undoubtedly true. There is no doubt that what Dr. Bliss tells us is true, and it

*See Vol. II., Page 147.

will become increasingly valuable as the profession more generally realizes how useful a material it has been, and is, and should be, today.

Dr. Marshall. This is an interesting subject, gentlemen. I am to blame for its being introduced, because I am an old fogy. When I entered the profession forty-seven years ago nobody except a very very few men were using cohesive foil. I believe the first men to use it were Westcott, Dwinelle and Alport. I need not go into the history of how it was discovered. You know it perfectly well. It was an accident. Being brought up to fill teeth with non-cohesive foil, it took a good many years before I could lay it aside and adopt the use of cohesive gold, and I look back with shame on the work I first did with cohesive gold. It was difficult to learn that we must use very small pieces of cohesive foil, as I had been using large ropes of the non-cohesive foil. There is where my failures lay. I used pieces too large and could not properly condense them. I learned that I could not restore the contour of some teeth with non-cohesive foil; neither could I build down the corner of a tooth broken off, with non-cohesive foil. That is the way I first learned to use cohesive foil, because I could not do that kind of operation with anything else. Dr. Bliss mentions some work I did in 1870 for a school friend. He said to me: "They are all in." I said: "All there?" "Yes," he said, "my dentist said, 'well, those old fillings that our friend Marshall put in for you in 1870 are still there and doing good work.'" I asked to see them. The surfaces looked as though they had smallpox, but they preserved the teeth and there was no leakage about them. That is the real thing we are working for—to save teeth. We cannot make as beautiful operations with non-cohesive foil as with cohesive gold. That is out of the question.

Dr. Rule spoke of the use of non-cohesive gold at the cervical margins. With all due respect to statements that have been made about the introduction of gold in that way, it is accredited to a half dozen men. The man entitled to the credit is W. W. Alport. They tried to laugh him out of court. McKellops made fun of him because he was doing this, and did not really believe he did it until Alport invited him to his office to see his work. I never knew him to fill a cavity in a bicuspid or molar without starting with non-cohesive gold foil. He said: "You can get a good margin if you know how to condense it." I have seen as beautifully contoured fillings made with non-cohesive foil as you have ever seen made in other ways. The polish was not so good, of course. I have put in many contoured fillings with non-cohesive foil and contoured them well and they have stood up, but it

takes harder work than with cohesive foil. In the finishing of my non-cohesive foil fillings in later years I was in the habit of finishing the surface with cohesive foil. They said: "Will it not peel off?" Not if you put it in right. The filling is carried up to one-third the depth of cavity, then you wedge the cohesive gold into the non-cohesive foil, and when you have the floor established you can build up as in any ordinary cohesive foil filling. I hope this question, being re-introduced after all these years, will be good seed sown in good ground, as I think we are going back, sooner or later, to the use of the non-cohesive foil for cervical margins everywhere.

Dr. J. N. Ward. Auburn, Cal. I would like to ask Dr. Bliss if, in deep-seated occlusal cavities, you ever practice laying the first cylinder flat on the bottom and use some of the modern cavity linings for setting your cylinders sidewise? One of the modern varnishes, for the sake of avoiding thermal changes. I know these are not as good with non-cohesive as with cohesive gold, but I think there might be some advantage.

Dr. Bliss. There is no necessity, when using non-cohesive foil, to use varnishes. I know they protect the pulp very well if you put in cohesive gold foil.

Dr. J. N. Ward. Is there any advantage except in the matter of time in using cylinders for the entire filling, over the last third or half?

Dr. Bliss. The only advantage is in time.

I thank you for the attention you have given my paper, and also for the discussion. I do not think I can add anything to what has already been said. I thank you.

Dr. Marshall, Chairman. The next paper is by Dr. H. G. Chappell, of Oakland, California: "Recessional Lines of the Horns of the Pulp in Relation to Operative Dentistry."*

Dr. G. M. Crow, of Los Angeles, was to open the discussion. (Absent.)

*See Vol. II., Page 151.

Discussion of Dr. Chappel's Paper.

Dr. Marshall.

In the absence of Dr. Crow, we will declare the subject open for general discussion.

Dr. R. W. Rule, Oakland, Cal.

Mr. Chairman, Ladies and Gentlemen: This subject has been of much interest to me for a number of years. I would like to emphasize, if possible, its importance in our every-day operative work. As Dr. Chappell has stated, we all have had the experience of having patients come back to us after a metal filling has been placed in a tooth, with extreme sensitiveness to thermal changes, and often in these cases, even if the metal is removed and other steps taken to overcome the trouble, it may be impossible to relieve it. The damage done may be irreparable, and I think to many men in the profession today the necessity for keeping the pulp vital is becoming more and more real. Some of us are dreading to treat cases where we have to devitalize and remove the pulp, as it leads into complications that are unavoidable sometimes, and it may mean eventually the loss of the tooth earlier than necessary. In every case where we can save the vitality of the tooth we are in duty bound to do it. Any carelessness in cutting across recessional lines, which will necessitate the devitalizing of the tooth later, is inexcusable. This has been brought to our notice in recent years by men like Black and Waedelstedt.

Dr. G. Maurice Crow, Los Angeles, Cal.

Mr. Chairman and Members of the Congress: Several months ago Dr. Chappell sent his paper to me. I felt I did not have the ability to discuss the paper as it should be discussed, and I urged him to go elsewhere, but he would pick on the "Crow," and insisted I must not show the white feather. I am handicapped in not having heard the discussion that has preceded me, but I read the paper. I was certainly greatly pleased by its contents. In one respect, particularly, it impressed me as differing from most papers along a scientific line, i. e., that here and there through the paper it is punctuated by certain applications to our daily work, making it not only a scientific but an extremely practical paper.

I want to draw particular attention to Dr. Chappell's application and his warning, as it were, in regard to operations on the molar teeth; his calling attention to the force and direction of mastication, and urging us to bear in mind the positions of the horns of the pulp in preparing our cavities for the reception of the fillings, no matter what filling material nor the mode of operation in filling.

I will confess that I knew little about the recessional lines of the dental pulp, but clinically in a practical and operative way we all have been brought to a sudden realization that the horns of the pulp play a very positive and active part in our work; and at times we have been embarrassed by exposing the pulp where we little expected to find it, and our patient has evidenced a great deal of suffering and has also displayed a great deal of confidence in us, in allowing us to make right the wrong we had done by not being familiar with the positions of some of the horns of the pulp, particularly in the posterior teeth. Another point the doctor spoke of, is to bear in mind the age of the patient, and be familiar with the processes of calcification and change in position of the horns of the pulp.

Tooth Discoloration After Pulp Removal.

Still another thing was brought to my mind by reading this paper. The necessity of considering the position of the horns of the pulp in the incisor teeth, upper and lower, when it is necessary to remove the pulp. You and I hear the question, "Does not a dead tooth discolor"? Patients tell us of some friend with a broken incisor objectionable to themselves and their friends, and they wish to know if it is a necessary sequence to pulp removal to have discoloration. Such discoloration is often due to our lack of knowledge of the position of the horns of the pulp in the incisors, and our anxiety to remove the pulp with as little tooth destruction as possible. Particularly in operating on the upper central incisor, I am afraid, we do not remove the horns of the pulp thoroughly or properly in many cases. It is necessary to cut away much of the tooth structure to get access to the horns and remove them and fill the canals properly.

Dr. Chappel.

I have very little more to say. As to the point brought out by Dr. Gilman, the rapid painless methods used today in the practice of dentistry, that emphasizes the great necessity for the thorough understanding of the internal anatomy of the teeth. If peridental or intra-osseous anaesthesia is used there is no means inside the tooth to tell when you are approaching a danger spot, except by the eye. Frequently these horns are cut across without the person realizing they are doing it at the time. The patient must suffer afterwards. So I want to emphasize more strongly than before: Study the teeth thoroughly! Cut crowns from teeth and study them. It is almost impossible to get specimens of course, of teeth of young children. If we had specimen teeth at the age of six, sixteen, twenty-six, thirty-six and so on, and should study them we would come to know a great deal more about the internal anatomy of the teeth

than we do. None of us has made as deep a study of it as we ought to. I thank you.

The Chairman. The European War has prevented Dr. Th. Weber of Helsingfors, Finland, being here. His paper, "A Method of Extracting Deep-lying Roots of Teeth,"* will be printed in the transactions.

The paper by Dr. Arthur D. Black not having been read yesterday, will be read this morning. The Vice-Chairman has kindly consented to read his paper.

Dr. H. E. Friesell, Vice Chairman. Besides the spirit of depression thrown over the Congress through the death of Prof. G. V. Black a few days ago, we also feel very sorry that this deprives us of hearing his son, Dr. Arthur D. Black.

Dr. Friesell here read Dr. Black's paper entitled "Operative Procedures in Relation to Dental Caries and Diseases of the Investing Tissues."**

Chairman. I am sure the section is grateful to you, Dr. Friesell, for being willing to read this paper in the absence of Dr. Black. The discussion on this paper will be opened by Dr. Fred E. Hart.

Discussion of Dr. Black's Paper.

Dr. Fred E. Hart, San Francisco, Cal. Mr. Chairman, Ladies and Gentlemen: I have looked forward to the pleasure of meeting Dr. Black. I am sure we all regret his absence and deplore the cause for his sudden call home. I have always earnestly sought the writings of Dr. Black and have tried to be thorough in following the teachings of his father, Prof. G. V. Black. It was therefore a double pleasure to respond to his invitation to discuss this paper. The value of an influence which would bring about a universal adherence to definite principles in our operative procedure, which assists in preserving the health of the investing tissues of the teeth, is inestimable.

The essayist in a paper three years ago gave us the results of statistics gathered from a large number of dentists from various parts of the country, which showed, as he again states, that in the mouths of young adults between the ages of 20 and 35, there are an average of eight

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*See Vol. II. Page 158.

**See Vol. II. Page 164.

area of gingivitis per mouth, and over half of them due to faulty dental operations.

Such papers as the one just presented bring home to us the realization that while by some the little endamoeba buccalis is regarded as the great destroyer of the health and happiness, by making obnoxious their homes and surroundings in the cesspools which they dig, we, who are pleased to inform the public of the ravages of the disease now so generally discussed, are responsible for a large percentage of areas of inflammation due to the irritating effects of our operations, which condition in all parts of the body is known to result in a final breaking down of the tissue so affected.

Dental Anatomy Ignored.

I concur with the statement of the essayist, that we are in an age of over zealousness in our efforts to artificially clean the teeth, without sufficiently regarding the importance of establishing the efficiency of cleanliness by strict attention to contours, in making operations to restore parts lost as the result of caries. There seems to be a lack of knowledge of the surfaces of the teeth, or a disregard for the importance of restoring such surfaces to a normal contour, or to such form as will best perform the functions which the natural, normal contours were intended to exercise. Though the importance of establishing contact with approximating teeth may be generally accepted, the proper form that will best protect the interproximal gum tissue does not seem to be well understood, or, if understood, is often disregarded.

Attrition On Approximal Surfaces.

The amount of approximal wear on surfaces of the teeth does not receive the consideration it should, particularly in the making of inlays of gold so soft that the movement of the teeth will soon wear flat and render ineffective a contact that may have been well formed in the making. The fact that the approximal wear on the teeth in a normal arch of a person 40 years of age is enough to shorten the arch about 1 centimeter, or about 10-25 of an inch, is enough to make us realize that a soft material will not withstand the wear to which it is subjected, and the value of such a contact is soon dissipated.

I can only accentuate the thought in this paper that we should be on the outlook for areas of gingivitis, and though there is no intention to discourage the most careful and painstaking prophylactic measures, I accept the suggestion that extreme artificial cleanliness without exhibiting the highest efficiency in producing conditions which will promote natural cleanliness, cannot supply the crying needs of the surrounding tissues of the teeth and deserves serious consideration at this time.

Dr. Franklin H. Locke, Oakland, Cal.

Gentlemen: I did not rise to discuss this paper earlier because there are others in the audience I thought could speak better. I believe we all feel the gentleman who has written this paper stands high in the profession, and we heartily commend all he has to say. It gives me pleasure to commend all I have heard in the paper, especially in regard to the proper contact points of the teeth. As to the fifty per cent. of cases recorded from imperfect operations many were undoubtedly due to imperfect contacts or contours. The contour or contact point cannot be too strongly estimated nor too much studied. It is too often overlooked. I was glad to hear Dr. Hart's emphasis of the subject. I am very glad to be present and hear the paper and would like to have met Dr. Black here.

Dr. Friesell.

I cannot let this paper go by without making a few remarks. The essayist indicates that the restoration of proper contact is of the utmost importance, and the restoration of proper contour is of great importance in all dental filling operations. Now, what does that mean? We have today in the profession two classes of men, two classes of practitioners: one conscientious in character that realizes the importance of these things and does its best to obtain proper contact and proper contour; and another class which considers these things as a sort of good thing to talk about, not important enough to actually practice. The man who takes pride in the rapidity of his operation—perhaps in the size of his fee, speaking from a standpoint of low fees—considers that the filling of a cavity means the stuffing up of the hole so that food cannot get into the cavity, and when he has done that he thinks he has given the patient as good service as the one who properly restores lost tissue. If we believe the things Dr. Black has presented in his paper then we must conclude there is a right and a wrong way to practice dentistry, and these two types of men referred to are the classes practicing the right and wrong ways; and the wrong way is nothing short of malpractice.

The statement of the essayist that in the average adult between 20 and 35 years of age we find an average of eight lesions of the soft tissues and that fifty per cent. are due to improper dental operations, should cause us to do some serious thinking.

Dr. Marshall.

The next paper on the program will be read by Dr. Harry A. Goldberg, of New York. His subject is "Pyorrhea Alveolaris, Alveolar Abscess, and Their Relation to Arthritis."*

*See Vol. II. Page 169.

Discussion of Dr. Goldberg's Paper.

Dr. Caroline Rosenberg, New York.

Dr. Goldberg has well discussed in his paper two common pathological conditions of the mouth and gums, and their relationship to a distant pathological condition of the body.

I should like to emphasize a few important facts which he has so ably presented.

First, the necessity of a closer association of the members of the medical and dental professions than there has been in the past. The dentist or physician working alone is often unable to control or understand the pathological condition of the patient. As shown in Dr. Goldberg's cases, many of the local conditions would have passed unnoticed by the dentist, had not the need of the discovery of the source of a distant pathological condition been requested by the physician. Conferences between the two should in the future be not uncommon; in fact, should be frequent.

Ordinary dental examinations would not have shown the actual condition, radiographs being necessary for their disclosures.

Rosenow, in some of the cases which he cited in his presentation of the *"Selective Action of Certain Organisms, Especially of the Streptococcus,"* shows that in the cases of appendicitis and in gastric ulcer, similar strains of the organisms which were found in these lesions, were also obtained from the mouth and gums.

In the discussion of focal infections Mayo, of Rochester and Billings, of Chicago, pointed out the possible frequency of the mouth, teeth and gums being the foci for the dissemination to distant parts of a variety of pathogenic micro-organisms.

Craig, of the Neurological Institute of New York, showed how a functional brain abnormality cleared up only after curing the pyorrheal condition, which had not even been suspected as existing, and was only discovered when deliberately sought for with the X-ray.

This merely indicates the larger relations that may exist between oral conditions and those in other parts of the body; and also re-emphasizes the need for the closer association of the members of the medical and dental professions.

Mention was made that the work of both professions is tending towards prophylaxis, the prevention of the occurrence of the diseases, whether local or systemic. To prevent a disease one should know the cause. To know the cause, helps towards securing the elimination of the disease.

Up to the present time, little has been known of the pathogenicity of the great varity of bacteria found in the mouth or in the non-normal teeth and gums. Much has been written, some work has been done, but as yet we have no definite results.

Several excellent men during the past year have proclaimed that the amoeba is the cause of pyorrhea. The work which we have done in the Research Laboratory shows that the amoebas are not uncommon in the majority of mouths which were examined. That the amoeba may be one of the existing factors, both in the etiology and in the keeping up of the condition cannot be denied, but this is still to be proven.

Streptococcus Viridans Not Always Pathogenic.

Further investigations are necessary to understand the importance of the different micro-organisms seen in both the healthy mouths and in the mouths with pyorrhea and alveolar abscess. The difference in pathogenicity of different strains of the same bacteria has not been considered sufficiently. The organism which has probably most frequently played a part in the cases to which Dr. Goldberg has referred, is the green colony-forming streptococcus often called the "streptococcus viridans." No mouth examined has been free from them and they grow abundantly there. But the majority of them are non-pathogenic. To find the streptococcus viridans in the mouth tells nothing; but to find a strain of them which is pathogenic and which will act as an antigen to the serum of the patient, producing a very positive compliment fixation, as has been shown by Hastings, then a strain is found which may be, and yet may not be, one of the etiological factors in the related systemic disease. In such a case that strain may be made into an autogenous vaccine, and given to the patient, with, by some considered, good results. Vaccine made from other strains or other bacteria found in the mouth, are entirely useless and good therapeutics would discourage the injection of foreign proteids that are valueless.

If a strain be found which, when injected into the gums of a sufficient number of test animals and the test be repeated several times, and being always properly controlled, would produce in a sufficient number of cases a pyorrhea followed by joint diseases, we would feel justified in saying that that strain of micro-organism was the particular cause of the mouth and joint condition of the patient. Merely to produce an arthritis in a test animal, as the rabbit, by the injection of the streptococcus viridans taken from the mouth of a patient, would not prove in itself that it was the strain that caused the joint trouble of the patient. Many strains of the streptococcus viridans that are non-pathogenic to man will cause an arthritis in rabbits. It is thus seen what care must

be taken in order not to draw a wrong conclusion from uncontrolled and limited experiments.

Infection from Dental Instruments.

I wish to refer to what Dr. Goldberg has merely mentioned as a possible cause, that is, the dentist himself and his instruments. They are often the transmitters and the direct carriers of mouth diseases from one patient to another. Is it not the duty of men like you not only to improve the technique which is often septic, and do away with the profound ignorance of contagion and of asepsis and antisepsis that is prevalent amongst the men of your profession. Also, you should take a stand that the teaching and the training in the dental colleges be more scientific and more thorough, so that the coming graduates will have a knowledge greater than the mere mechanics of the mouth (which, I believe, you all do well), but that they will know enough about bacteriology, about pathology, and about the various diseases, both local and systemic, and their methods of transmission, so that they will not be mere workers in the dark; nor dangers to their patients; but will be helpers, will be able to do constructive work, whereby diseases and abnormalities will be prevented, as well as cured.

Dr. Harry Sherman, San Francisco, Cal.

Mr. Chairman and members of the section: I thank you very much for permitting me to speak to you on this subject. I was particularly glad to follow Dr. Rosenberg and hear all she has said, because I take a little credit for it. I happened to be one of her teachers when she was a student at the University of California here. I wish to approach this subject, however, from a totally different angle. Patients do not come to me about their teeth, they come about their joints or lameness of various kinds, or other conditions of surgical interest. Following the etiology I have been led to the teeth as one of the points of suspicion for investigation. Really, we have to consider every inch of the mucous membrane of the body, whether it opens directly or only indirectly upon the surface. We can have these infections from the ear, nasal cavities—many from the tonsils; from the gall bladder—though both gall bladder and appendix origins are relatively rare. We can have them from the kidneys, bladder, prostate, seminal vessels, body of the uterus, or from the vulvo-vaginal glands. We must think of the bacillus of tuberculosis, of the gonococcus also. We must think of typhoid fever and scarlatina and joint conditions are not unknown in measles. In spite of these possibilities of explanation there are always a certain number of inexplicable cases, those with long names: arthritis deformans, for instance. We tried to put one name to one group, an-

other to another, etc. I finally stopped reading articles on the subject as I did not understand them, and had to acknowledge I did not know what I was dealing with. It was simply a matter of putting a patient in an apparatus which kept them from suffering pain and getting them well, in general terms.

Then came Rosenow's demonstration of the streptococcus of the different types and their mutual relations to each other. So that when Dr. Rosenow speaks of streptococcus viridans as being found about the teeth, I have to remember the bacteriologist finds streptococcus pyogenes in these same teeth, and there has been a mutation from one to the other. Following up these cases to the mouth, we get an explanation through Rosenow's demonstration of cultural methods, that clears up many of the otherwise inexplicable cases, as in the early 80's the discovery of the bacillus tuberculosis cleared up strumous and scrofulous joint troubles, etc. They were tuberculous joints, and so rheumatoid arthritis and arthritis deformans must also be disposed of. It is not rheumatoid arthritis itself, but a toxic joint of some variety, caused by an organism of the same kind. Here is really the truth brought out by Dr. Rosenow: the surgeon, physician and dentist must work together. This is the first great opportunity to come into the closest possible co-relation. That is what I wanted particularly to speak to you about; that and the importance of the work you are doing in this field.

Co-operation Between Dentist and Physician.

It is impossible for the dentist to be ready to take care of joint conditions or conditions of the appendix, even though the appendix be affected from the conditions of the teeth and tonsils. It is impossible for the surgeon to take up the work of the dentist. I work with Dr. Van Orden; he sees the matter from the dental side and also from the surgical side, and I see it from the surgical side primarily, and through him from the dental side. The dentists must have medical men to work with them. I always send a patient back to the dentist who has done his previous work. It is not infrequent that the dentist cannot see the thing from my viewpoint. He cannot see the things in the radiograph that the radiographer and I see. That merely means he is not prepared for it, because it is a very fruitful field for greater interest than the mere filling of teeth, and it is the business and the duty of the dental profession to meet this demand which is to be made upon them.

That demand is for something more than I have been speaking of in the way of co-relation of effort and taking care of individual mouths for individual conditions. The dental profession in this particular is with the

profession of laryngologists—those gentlemen who take out tonsils—standing guard at the port of entry of infection. The mouth is the great port of entry for infection. I have listened with interest to the gentlemen speaking of cleaning the mouth, and I wondered how they would keep it clean after doing the work? I have seen dentists working in their offices with bare hands, and have asked why they did not put on gloves? The rectum contains unpleasant things, but practically it is a normal content, and the mouth has in it everything there is in the street! You gentlemen are standing where you have got to fight this influx of air-borne, water-borne, food-borne and finger-borne infection. You have one of the biggest problems any profession can ask to have given it. You are going to be the custodians of the health of the future generations. On your efforts will depend the dissipation of many of the chronic ailments.

If you had studied in orthopaedic hospitals, and could see chronic joint conditions, you would know how frightful it is to have an able mind and willing spirit in a body tied to a chair. You may perhaps prevent that in some cases.

There are many other conditions of which we do not know the cause and the origin, and perhaps the streptococcus may be the cause. Sclerosis of the spinal cord is one. Elephantiasis is a streptococcus infection, and I have been studying it in a patient 17 years of age. We have control and are waiting to see if the sub-infection in the leg will yield and disappear. The elephantiasis in that child (a 17-year-old girl) and an infected tooth filled with cotton, have a relation that is perfectly clear in my mind, but I cannot prove it as yet.

Men who practice on the eye, ear, nose and throat have the same thing to look out for: they stand guard over those organisms that come in through the tonsils. They protect the eyes and ears.

You have to take care of the infections of the teeth and jaw bones, standing on guard against the disasters which may befall. I want the dentists to appreciate that in that way, and think of themselves as being a most important group of men; a most important group of men, whose work will go on and broaden and deepen just exactly as far as they will fulfill the conditions and you can do quite as much for the human race as can the physicians, and in this instance can do a great deal more than any physician or any surgeon. I thank you.

Dr. Marshall, Chairman.

I am glad I have lived to the day when I could listen to such a talk as Dr. Harry Sherman has given us. Would that we might rise to the occasion. Let us try and do it.

Dr. Goldberg. I want to thank you for your kind attention to my paper, and I appreciate with extreme pleasure the honor of Dr. Sherman's remarks. His work as an orthopedic surgeon is beyond question. He has a reputation in New York as being one of the leading orthopedic surgeons in San Francisco. I want to thank Dr. Rosenberg for her interesting talk on bacteriology. She does so much of it and is so thoroughly familiar with her subject that her opinions are of considerable importance. I thank you for your kind attention.

Chairman. That concludes the program for to-day, and we will adjourn to meet to-morrow morning.

Adjournment.

September Third.

The Section was called to order at 9:40 A. M., in Hall C, 2, third floor, east side, by Chairman Dr. John S. Marshall, who announced that in the absence of the Secretary he would appoint Dr. F. W. Shores, of Oakland, to act as Secretary, *pro tem.*

Dr. John V. Conzett, of Dubuque, Iowa, read a paper on "Cavity Preparation for the Gold Inlay,"* the paper being illustrated by lantern slides.

Discussion of Dr. Conzett's Paper.

Dr. H. E. Friesell, Pittsburg, Penn.

It is often that I differ very much with Dr. Conzett in his views on operative dentistry, because he is usually right. We all like to be on the right side of things, and those who differ with Dr. Conzett are most frequently wrong. But there are one or two minor points which he has brought out in his essay this morning with which I do not wholly concur. Perhaps that is due to some extent to the fact that I am not what you might call an enthusiast on inlay work. I am still conservative enough to feel that a good filling, whether it be gold or amalgam, is superior to an inlay. Of course, I am willing to acknowledge that a good inlay is superior to a poor filling of any kind, and also to recognize that there are conditions which make it advisable, under certain circumstances, for an operator to use the inlay method rather than the filling method.

Personally, I believe that if a cavity can be filled properly with gold or with amalgam, that that operation should be done and a permanent operation made. But if it cannot be done properly and thoroughly to the utmost satisfaction of the operator, then the inlay comes in as second choice. I believe, however, that the gold inlay is far superior to an extensive gold or amalgam filling, and entirely preferable where it can be used in place of a crown.

I wish to compliment the essayist on his wisdom in limiting his essay to one phase of the subject of inlays, that of cavity preparation. I feel that it is much better for us to concentrate our attention upon one phase of an important subject so that we get a clear conception of it, rather than to open up the whole field, and at the end have rather vague ideas.

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* See Vol. II. Page 181.

There are certain basic principles in cavity preparation which have been given to us by Dr. Black, that apply to the preparation of the cavity, whether it be for an inlay, for a filling of some other material, or a filling in some other form, and those the essayist has well presented. I do feel, however, that we owe a great debt to the gold inlay in one respect particularly, and that is in establishing the outline form, or rather in bringing about the broader acceptance of the proper outline form of a cavity on the part of the profession generally. The gold inlay has done more to standardize the outline form of a cavity in the dental profession than all of our knowledge of dental pathology and our promulgation of the principles of extension for prevention could have done.

Extension for Prevention.

There are men to-day who became rabid (and they do yet occasionally) when we used the phrase "extension for prevention," and who claimed that it was malpractice to cut away tooth structure so extensively in order to fill a cavity. But when Dr. Taggart gave us what appeared or promised to be an easy way of filling cavities by making a wax pattern and then cementing an inlay made therefrom into the cavity, many men, whose conscientious scruples could not consider seriously the adoption of the pathological principles upon which the rule of extension for prevention had been based, did not find any trouble with their consciences in so extending the outline that they could get the wax pattern out and the gold inlay in; and the tooth profited thereby. (Applause.)

Resistance to Stress.

The essayist said at one place in his paper: "We do not know how much stress each filling may have to resist." That is true, the stress in one case may be much greater than in another, but we should do as the wise architect and the wise engineer does; estimate the maximum amount of stress and then double it for security.

A knowledge of the comparative strength of the various materials which are available for inlay work will enable us to adapt ourselves to conditions where we find that particular shallowness of the cavity must of necessity prevail in certain cases.

I wish to compliment the essayist and to emphasize a statement he made that we must not think when we are preparing a cavity in a tooth that we are saving only that tooth. In all of our work upon a tooth, or upon teeth, we should consider that the tooth is only one part of a very important organ in the body, the masticatory organ; an organ whose functions are just as important as those of any other part of the body; that it is not simply a matter of this one tooth which we can fill, or if it is too much trouble we can remove.

Burnishing Margins of Inlays.

I do not agree with the essayist on the practice of burnishing the margin of an inlay. I do not believe that we can secure better adaptation of the margin of a gold inlay by burnishing it to the cavity. If I have a crown band, a band that is too tight, and I want to enlarge it slightly, I burnish it; and when I try to burnish the margin of an inlay so that it will fit tighter to a cavity, instead of making it fit tighter, I enlarge that outline, and I make the general fit of that inlay at the cavo-surface angle worse rather than better.

Technique of Setting Inlays.

I wish also to lay emphasis upon his statement in regard to the manipulation of the inlay, once crystallization of the cement begins. I think that is the primary cause of many inlays loosening in a short while. We know in the making of a cement filling, that after a certain point, where crystallization of the cement begins, if we fool around with that cement and make pressure upon it, instead of having a properly crystallized cement filling we will have one that will begin to crumble, to break up and lose strength; and the same thing will take place in the cement under an inlay. The thicker the mass of cement between the inlay and the cavity walls the greater will be the disaster in such cases.

I believe that the inlay should be malleted to place quickly, so as to set all of the insoluble particles of cement into the thinnest line possible; then pressure should be put upon the inlay and the cement allowed to crystallize under pressure; but do not keep continually malleting at it or burnishing or working with the inlay, unless you wish to destroy the support of the cement.

Hot Air.

I also want to take issue with my good friend, Dr. Conzett, on his use of the phrase, "Hot air for drying out the cavity." There are some places in dentistry where "hot air" is a very useful thing. We need "hot air" in some places where we do not get it now. But hot air should never be used in a tooth. Warm air. It does not make any difference if the tooth has had the pulp removed; if we use air that is hot we are very likely to dehydrate the dentin and to cause minute fractures in both dentin and enamel; and we should be much more careful about the temperature of the air that we force into a cavity than we usually are.

Dr. Fred B. Hart, San Francisco.

I have looked forward to an opportunity of getting in touch with Dr. Conzett on just this problem, the preparation of cavities for inlays. I esteem Dr. Conzett's judgment and his work because I know that he has been a man of great experience with gold foil fillings; a man who has been very expert in the management of foils.

I have come to believe that the inlay is invaluable, that it has its place in dentistry, and that we could not well do without it. However, I do not think it is a panacea for all conditions that caries brings about. I consider that the man who is capable in handling foil, who has managed foil and made fillings such as Dr. Conzett has made, for many years, and who has experienced the glow of satisfaction that comes to one after he has completed a foil operation that is worthy, is a better man to give us something on the gold inlays, that a man who has not acquired proficiency in handling foil, who has not experienced that satisfaction or glow of success with foil, but who has turned to the inlays because he found that foil had not given the results he had hoped to get.

Marginal Bevel.

Like Dr. Friesell, however, I am not in a position to agree with him entirely on his cavity preparation. I have kept pretty closely in touch with what Dr. Conzett has taught heretofore, and which has appeared in the journals, and some of the illustrations in the journals I believe are much the same as he showed us this morning; and I have really felt that he carries his bevelling to too great an extent, that he bevels too largely. I have attempted to follow out his teaching in that regard, and I find—in fact I have always found that to get the right cavo-surface angle bevelled for foil fillings or otherwise is not easy; and when you come to increase that bevel more than lightly going over the margin with a sharp chisel and planing it would do, to increase it as shown in these cuts, it is a difficult thing to get the correct bevel; especially the gingival margin bevel. The gingival margin is taken care of with the gingival margin trimmers.

With the thought in mind that Dr. Conzett has given us on this enamel margin bevelling, I prepared cavities in teeth and have attempted to get the bevel on the gingival margin, which he shows is about equal to the margin in other portions of the cavity. For instance, the same bevel at the gingival margin he shows as about equal to the bevel at the proximal occlusal angles. As a matter of fact, the enamel is so much thinner at the gingival portions of the cavity, that to get such a bevel you go into the dentin; you bevel dentin as well as enamel. I have not found it easy to grind a tooth, and to judge just where the enamel is, or to cut a tooth in cavity preparation at just the dentin enamel junction; but if you will soak a tooth in glycerin, or even water for a while, and then hold the enamel over a flame, it will pop off in pieces. It may not come off as a whole, but it can be scaled easily, and this will give you a chance to see just what the thickness of the enamel is. So I cannot agree with him really on his cavo-surface angle bevelling in all portions of the

cavity, because the enamel is very thick on the occlusal portions, whereas, on the gingival portions it is comparatively thin.

Burnishing Inlay Margins.

I am more inclined to agree with Dr. Conzett on the burnishing of the inlay margin, after he has it bevelled.

In making inlays, many say to me "it is so much more work to make a foil filling, and you have to have the rubber dam on for so long, whereas with the inlay you get away from it." Really, the application of the rubber dam seems to be quite a factor with some of the profession in determining what operation they will follow; whether they will use an inlay or foil or amalgam.

I want to tell you that you cannot dispense with the rubber dam and accomplish the best results with an inlay any more than you can with a foil filling.

Dr. John U. Conzett.

I wish simply to thank you for your courtesy and for your appreciative attention to the few things which I have tried to bring to you. I think Dr. Friesell and I do not disagree at all. Neither do Dr. Hart and I. I think no one can regard gold foil fillings any more highly than I do. There is nothing that has ever been given us that will save a tooth better than a good foil filling; but, of course, there are other things that enter into the proposition; and I came before you this morning to give you a talk on cavity preparation for the gold inlay. I did not attempt to explain the differentiations.

Dr. Friesell spoke about the burnished inlay, and the point which he attempted to make is well taken, except that there is a decided difference between an inlay and an onlay. If you attempt to burnish a gold crown you stretch the gold and enlarge it and drive it away from the tooth; but an inlay is in the tooth, and as you burnish that you do enlarge the gold and stretch it, but that is exactly what you want. I thank you very much for your attention. (Applause.)

The Chairman.

The next paper is entitled "An Informal Talk On Inlays,"* by Dr. E. S. Tracy, Brocton, Massachusetts.

Dr. Tracy read his paper.

The Chairman.

There has been no one assigned definitely to open the discussion on this paper, so we will declare the paper open for general discussion.

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*See Vol. II. Page 189.

Discussion of Dr. Tracy's Paper.

Dr. F. D. True, Des Moines, Iowa.

I have enjoyed this paper this morning, and I think the essayist has brought out a few things that we all have heard before, but which must be spoken of over and over again. One of them was where he referred to the matter of heating the litt'e tiny wire and removing the wax. I had not tried that. In large cavities, where there was a large piece of wax, I have used wire formed into a little staple, to remove it.

I think in the use of waxes, we can use a hard wax to start with, and after removing it, if we find a vacant spot, or that we need to add a little, we may use a different colored wax, or a wax of a softer consistency and then put it back in place.

Dr. Fred E. Hart, San Francisco.

I do not suppose we should take exception to, or pick out certain things in a paper presented, simply because we do not agree with them, because that would rather lead people to think that you wanted everybody to think as you do, and that your way of doing things was paramount. I do not want you to form the opinion that I have that much ego because it is not a very pleasant position to occupy.

Of course, I might differ with the essayist in one thing. I quite seriously disagree with the use of stones in preparing cavities. It seems to me that they have very little use, except a large stone, possibly, in cutting off a weak wall, where you have to diminish the height of a weak wall, but especially in the internal part of the cavity I have no use for stones.

Dr. Walter Stark, Auburn, Cal.

There is one point that I would like to emphasize, and that is in relation to getting the wax of uniform density throughout the cavity. One of the great difficulties in inlay work is to get the inlay to fit closely at the gingival margin. Very many of us, as the essayist seems to advocate, will allow the patient to drive the wax down into the cavity so as to get the occlusion in that way, and then forget that the wax in that way will be more dense at the surface where the opposite occluding tooth strikes it, than it will be farther down in the cavity. Therefore, it is well to push the wax down somewhat as you would an amalgam filling, by plugging it down and melting the hole which thus is made, full again, so as to get the wax somewhat near the density that it will be on the surface. Then after it is quite finished you may allow the patient to grind down so as to get the occlusion in that way.

The great object in doing this in my practice is to expand the wax after it has been removed from the cavity, with warm water. We

know that the gold shrinks and contracts some two per cent., in spite of the best casting machine that is made. We can compensate for that with many waxes by expanding the wax in warm water before we invest it, and in that way we get a very close fit; but if the wax is not of uniform density it will not expand uniformly and consequently we will have trouble in getting it in the proper place.

Dr. E. S. Tracy. I did not come here with the thought of offering anything new in the line of inlay making, but I did think and hope that giving you my ideas of the technique which I use in my private practice, might draw you out. I thought possibly I might give you some suggestions which might be of benefit to you, yet at the same time I was selfish enough to hope that I could draw from you something that would be of benefit to me.

I expect, if Dr. Hinman had been here, I would have been torn to pieces quite a good deal, although really my technique and my ideas of cavity preparation are almost identical with his.

This overlap, as I was pleased to call it, is exactly the same thing which Dr. Hinman advocates. It is simply where you bevel the edges of your enamel, that this overlap is to extend up and over to protect it.

Dr. Hart, I think if he understood me rightly, will remember that I said I used stones for preparing the enamel margins of the cavity. I use, I presume, about the same method for cutting the dentin that the average dentist does; good sharp burs, properly shaped, but I do find that the use of stones in cutting away the margins of the enamel are much superior, in my hands at least, to burs.

As to the removing of the wax, I think possibly every man and woman dentist before me has seen as they have watched the operations of different dentists, some very careless removing of wax. I have seen men who posed as and were in other things, possibly, good operators. take an explorer and plunge it into the side of a wax inlay, tip and tear and at last pull it out. You can do that with almost any piece of wax, regardless of the shape of the cavity, but what will you get when it is removed? Distortion in every part. With this little wire which I have used—I have used several other methods, but with this little wire of which I advocate the use, heated and plunged into the inlay and allowed to cool—you can tease it from the cavity in such a way that it will practically not distort nor disturb the interior or the external surface of the wax, and I find it not only very convenient but effective as well.

About pressing the wax down and melting it into the cavity, that is a good suggestion; but in putting my wax, confined within a matrix, into the cavity, I generally use my thumb, if it is possible to get it down, and I put on sustained pressure and quite a good deal of it. If on re-

moval I find it has not gone to the cervical border perfectly and there is not a perfect outline of the margin there, I remove it and frequently melt it in as the doctor has suggested. I thank you for your kind attention. (Applause.)

A Member. May I ask Dr. Tracy his method for removing the wire from the inlay?

Dr. Tracy. It is very simple. Holding the wire in your fingers, with the inlay attached at the end of it, I take my sprue wire, place it in the flame of an alcohol or gas lamp, and when it is just at the right temperature, so that I can hold it with comfort, I plunge it into the wax carefully, still holding the inlay on the wire. After it cools, I let go of the wire, hold it up in this position (indicating), take hold of the end of the wire, and carefully place it in the flame. The wire being of copper is a fine conductor of heat, the heat flows up into the inlay, and almost instantly the wire can be removed from the wax. Then with a spatula heated just a little in the flame, I carefully close up the little opening that the wire has made in the wax.

Chairman Marshall here made an announcement regarding the Symposium on Pyorrhea Alveolaris to be held on Monday, Tuesday and Wednesday of the following week.

Chairman Marshall being obliged to leave at this point, the Vice-Chairman, Dr. Friesell, assumed the Chair and presided for the remainder of the session.

Chairman Friesell. I have the pleasure of introducing Dr. Ottolengui, of New York City, whom you all know by reputation and many of you personally. He will read a paper entitled "The Restoration of Masticatory Function With Carved Gold Inlays."*

Dr. Ottolengui then read his paper.

Discussion of Dr. Ottolengui's Paper.

Dr. A. H. Ketcham, Denver, Col. Mr. Chairman and Gentlemen: I really do not feel competent to open a discussion on this excellent paper, one which brings our attention to the fact that it is possible for a dentist to restore occlusion, so as to increase the efficiency of his patient's masticatory apparatus many fold. We are learning that we may take root canals and abscessed teeth, take the mouth in a condition in which pus is found and make it a healthy

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*See Vol. II. Page 194.

mouth, and then with an anatomical restoration we may restore the usefulness of the teeth and perhaps even improve the mouth to a condition better than it was before the teeth were decayed.

Dr. Ottolengui has brought out the point that we must study typical teeth first, that we must study normal teeth first in order to know how to restore to normal usefulness those which are abnormal or decayed. The best way of doing that is not only to select all the mouths that you can in which conditions are normal and in which typical teeth are present, but to take impressions of normal cases and then scrape away the cusps of the teeth on one side of the impression, the side which is least normal, and, having the normal side as a guide, carve the plaster teeth on the opposite side, using the normal teeth as models. In this you will notice the broad approximal contact to which attention was called (referring to a slide). You will notice the grooves and the inclined planes slanting away from the contact so that the food is forced away from the contact point, and into the mill where it is ground. We notice on the upper, that the mesio-lingual cusp of the first molar is the largest cusp above, which grinds the food in the large fossa of the lower molar. You can explain to your patient the importance of the cusps and the functions of the lower molar in grinding the starchy foods, crushing the cells of the starch so that the saliva may act upon them.

(Referring to another slide.) The doctor has called attention to the lines of the fissures, and you can see even in cases where there has been much wear, the lines are still present, and should be accentuated in the restoration.

(Referring to another slide.) This is one of the usual cases of restoration where no attention was paid to the anatomy, and you see that the inlays instead of being formed so that the food would slip toward the mill, in this case the food will slide toward the interproximal space, which is true of the upper teeth. This was a case which was treated by an orthodontist and which was referred to me to remove the retainers. I saw at once that if the occlusal surfaces of those teeth were not restored anatomatically, the case would relapse, because the arches had been expanded to a large degree. Correct restorations were placed by his dentist at my suggestion. This was a lawyer, a very bright young man; and after these were restored we were afraid he would suffer some inconvenience. The next day he reported that they were as comfortable as old shoes. He said he could masticate his food better than he had been able to for years.

Dr. T. H. Hinman, of Atlanta, Ga., who was to have followed Dr. Ketcham in the discussion of Dr. Ottolengui's paper, was not present,

and the paper was thereupon declared by the Chairman to be open for general discussion.

Dr. J. C. Smith, Merced.

Mr. Chairman and Gentlemen: As I understand it, Dr. Ottolengui makes all these inlays of pure gold. I find that where I most closely approach to the use of pure gold in the inlays which I make there is much flowing under mastication. I have not paid quite as much attention to the carving of the sulci, and I would like to ask the doctor if that eliminates the flow of the gold under mastication?

Dr. E. S. Tracy, Brocton, Mass.

I have no criticism to make of the excellent paper which Dr. Ottolengui has just delivered, and of the models which he has shown. I feel that he is doing the dental profession, and through the dental profession, the people of the country, one of the greatest services that it is possible for any man to give. I am very glad I was here. I have never had the pleasure of meeting Dr. Ottolengui before and it has given me great pleasure to be here and listen to his very fine exposition of this subject.

The Chairman.

I am sure Dr. Ottolengui will be glad to answer any questions that may be propounded. (Addressing Dr. Newkirk.) Dr. Newkirk, can you not give us a few ideas on this subject?

Dr. George H. Newkirk, Pasadena, Cal.

Mr. Chairman and Gentlemen: I heard only a small part of the paper, having been detained in another section, and really I do not quite comprehend the scope of it. But I presume it is a plea for absolutely correct anatomical occlusion, is it not?

Dr. Ottolengui.

Anatomical occlusion and anatomical contact points.

Dr. Newkirk.

I have only this to say, that it seems to me of primary importance; that it is one of the most practical subjects that could possibly be brought to our attention. I wish particularly to touch on just one thing, which is absolutely neglected and forgotten by nearly every dentist in the country in his attempted restorations. It is as simple as A, B, C. They ought to know better, but they do not pay any attention to the preservation of the marginal ridge above the contact point. In ninety-nine out of a hundred of the approximal fillings which are put in, that point is neglected, and the food gradually works toward the interproximal space, instead of being forced into the mill as this last speaker appropriately termed it; it is forced out of the trough of the mill down into the interproximal space,

if it is possible to get it in there. This is all wrong. We ought to attend to that every time we attempt to make a restoration. Let us do it. (Applause.)

Dr. F. J. Kinley, Healdsburg, Cal.

Mr. Chairman and Gentlemen: I think if for nothing else we ought to thank the doctor for having differentiated between a simple contact point and proper contact. I have seen in our younger members of the profession in this state a loss of that idea. You may have a contact point but not a proper contact; and I just want to emphasize that; I think that is so important.

Dr. Ottolengui. (Closing)

Mr. Chairman and Gentlemen: There is only one question which has been asked and consequently there is very little to answer, but as the paper has been restricted to a plea for doing a certain thing, if the audience would care to have me do so, I could give you in a few words a description of how I do it myself. (Applause.)

The answer to the question about pure gold is very simple. In the beginning of this work Taggart told us to use pure gold. He did not exactly tell us why; and I used it. Many men in my section found the same difficulty that the questioner found; that the gold would flow, and even in some cases split the teeth. So they began to alloy the gold in various ways; the most popular of the alloys in New York was three per cent. of platinum in the gold. I did that for a year and a half. So you see I am not giving you simply a theoretical argument, but an argument based on practice.

Then came this plea from Dr. Young, and along with it, an interview with Taggart in which he explained to me that, never mind how accurately you could make castings with any alloy of gold, the same casting would be more accurate if made with pure gold; that shrinkage is at the minimum and accuracy at the maximum. Consequently this dogma arose; if we can get a better fit with pure gold, and if we can overcome this tendency to flow and split the teeth, then we should use pure gold. I went back to pure gold, but followed the lines suggested by Dr. Young, in reference to carving. And then I discovered that we all should have known at the outset, that the real cause of the splitting of the teeth and the flowing of the gold was that the gold filling was made incorrectly; that the occlusal surface was wrong. The flat filling is prominent at points, whereas the whole plane of contact in the occlusal surfaces of teeth when correctly formed, is so formed that no undue stress is brought upon any point. Consequently I have had the pleasure of seeing all the inlays that I have put in since, properly carved and properly occluded, come back a year and a half afterwards in absolutely the same

condition in which they went out of the office. So then the answer is that pure gold is best because it casts better and more accurately, and because of this, lessens your space for the cement; you overcome all of the faults of pure gold by having the occlusion correct.

Technique for Correct Approximal Contact.

Then the question turned on how to get the occlusion absolutely correct, and to get the contact points absolutely correct, and as the latter is the easier of the two, I will describe that first. I lay so much stress on the occlusion and contact that I do not use the indirect method in making inlays. Of course, occasionally I do, but in ninety-nine and nine-tenth cases out of one hundred I do not. There is no model you can make that accurately reproduces the conditions as found in the human mouth. No plaster tooth represents quite so well the contact surface on which you may make your inlay as the tooth immediately next to it. Hence I take my impression with my pattern wax, with the approximal surface of the tooth adjacent, and my pattern shows an impression of the adjacent tooth. In trimming the wax I leave that contact very much broader than I really require; I do not cut it away. Therefore, it is much broader and deeper than is really necessary; it shows as a concaved depression. We cast the inlay in that shape. When we are finishing the inlay for setting, those sharp edges of that saucer-shaped contact area are gently trimmed away with polishing paper, and just as much of that contact is preserved as is desirable. So that instead of carving it away in the wax it is only modified and changed after the gold is cast by polishing until you get a smooth surface. That gives you the greatest possible area of contact; and even though it may be a little greater than was normal I feel we are better off, just as I feel we are better off to make the sluiceways deeper and the cusps higher in abraded teeth than they might have been originally.

Technique for Obtaining Occlusion.

Now in regard to the occlusal surface; I make my inlays with the rubber dam in place, and I carve them with the rubber dam in place. Consequently it is impossible for me to make any tests by closing the mouth. This compels me to study what is left of the tooth and to know how to carve what should be there. I purposely make this as typical as possible, regardless of the age of the patient. After that typical inlay is made, which is as near as possible a likeness of what the tooth was when it was first erupted, that inlay is set in the tooth, and, of course, it is a little high. A piece of blue tracing paper is placed in the mouth, and patient is asked to grind on that, and naturally he comes into contact with the very high surfaces. The little blue spot which shows where the inlay is too high is very delicately carved away with the

tiniest stones in the engine; the remnants of stones which have been previously used, so as not to cut away any more than what has been marked blue on the inlay. This is done again and again until we no longer get these high spots marked in the inlay. Supposing that I have absolutely guessed the original form of that tooth, I am enabled by this means, at one sitting to grind away that portion of the tooth which had been ground away by thirty years of attrition. I get my tooth into normal occlusal contact with its neighbor above, and I improve conditions by increasing the depth of my sluiceways, and leading my sluiceways into an opening to carry the food off. I thank you.

An adjournment was then taken subject to further announcement, to Saturday, September 4, 1915, at 9:30 o'clock A. M.

September Fourth.

The Section was called to order at 9:45 o'clock, by the Chairman, Dr. John S. Marshall.

Vice-Chairman Friesell and regular Secretary, Dr. E. A. Tripp were both present.

Chairman Marshall. We have four papers on the program this morning but two of them have not been sent in and the essayists are absent.

Dr. Fred E. Hart, San Francisco, read a paper on "System versus Empirical Methods in Operative Procedure."*

Chairman Marshall. I will now call upon Dr. Friesell, the Dean of the Dental Department of Pittsburg University, our Vice-Chairman, to open the discussion on this paper.

Discussion of Dr. Hart's Paper.

Dr. H. E. Friesell, Pittsburg, Penn. Mr. Chairman, Dr. Hart, Ladies and Gentlemen: I had hoped that someone else, namely, Dr. Millberry, would be on the firing line, and that I might follow in the second division.

You have probably all more than once heard the old familiar statement that order is Nature's first law. And like many of the old maxims which are simply a crystallization of the experience of generations, this has passed in one ear and out the other.

Order is Nature's first law. System is simply methods classified, properly selected and reduced to order. The basis of science is classification, and one of the most important things in any science is classification. Some great leaders of science have said that classification is the most important thing. Classification is based upon system.

The man who attempts to practice dentistry in any of its phases without reducing his work from start to finish to a system is like a man who would attempt to learn the alphabet by shuffling the letters and then starting in that way, or like the printer who when he threw down his type, simply scattered them all in one pile, because it was too much trouble to sort them out, and when he came to use them again would have to pick through the pile until he found the letters that he wished.

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*See Vol. II. Page 202.

Many of us practice dentistry in that way. Many of us waste much time hunting for an instrument that we think we want and then trying it, and trying three or four more, until we find some one that does the work properly for us, and a large proportion of the dental profession to-day is dependent for its cavity preparation upon burs, because as it acknowledges, it cannot do the work with hand instruments, and that is because it has not reduced its method of thought to a system, and it does not know what hand instruments to use for the particular operation.

The operator who operates by hit or miss cannot accomplish half of the work in a given time that he could accomplish if he reduced his methods of procedure, not only operative procedure but mental procedure, to system.

System rests upon classification. Classification necessarily demands a clear understanding of everything that enters into the matter that is to be classified, because how can we classify if we do not observe and compare, select and arrange in the most suitable order?

The system of Dr. Black has been referred to. There is not any other system in operative dentistry and in many other phases of dentistry except the system Black has given us. Black stands to-day as the exemplar, the apostle of system in dentistry. Black's whole life is a monument to the value of system in dentistry, system in diagnosis, system in observation, system in prognosis and system in performance.

When the dental profession begins to realize, which it perhaps will now in a few years, since he has left us, the monumental work which that one man has accomplished, they will begin to have some proper appreciation of the value of system, because Black's whole work in dentistry, his whole scientific life, has been based upon systematic observation and study of conditions.

Black's Dental Anatomy.

This systematic study of the teeth has given us a dental anatomy which is the only text book we have in dental literature that approaches the standard of a satisfactory text book. Two inch thickness of pages, fine illustrations, a stiff back to the book and a good stiff price for it does not make a text book. And to-day in dentistry, after seventy-five years of college work, after seventy-five years of the development of text books, we have one text book that is a real text book, and that is "Black's Dental Anatomy." And that is due to a systematic study of the teeth.

There have been some remarkable statements made in this Section of the Dental Congress. Some statements of vast importance—important because they are so incorrect—have been made on the floor of this Section, that would not be made if the one making them really knew what a tooth

looked like. That is a pretty broad statement, but nevertheless it is true. Recently some one recommended that it would be a good thing for the dental profession if every five years every practitioner were compelled to take an examination. It would be a good thing for the dental profession and the public if every year each one of us studied from the front page to the back page "Black's Dental Anatomy."

You ask why is that important? Try it on some of your confreres. See what they know about the form and the position and the real function of the teeth, and their investing tissues! Men who have been working in the mouth for from ten to twenty years do not really know what a tooth looks like. They do not know what a masticating organ really is. They could no more put it in shape properly than could the novice who buys an automobile and has never seen the inside of the hood, tune up his engine properly or know when it is in tune. If you do not believe it try it on yourself. Take sets of teeth and study them, and then study "Black's Dental Anatomy." What system has done for Black, system can do for each one of us.

Systematic study of conditions in the mouth has given us a knowledge of the pathology of dental caries and practically all that we know of the pathology of dental caries in the enamel we owe to Black and to systematic observation. Operative dentistry is founded upon a knowledge of the pathology of dental caries.

If we reduced all our work to a proper system we would first be required to look at that work from every standpoint to consider where one procedure is superior or inferior to another, to make a selection; and while this will take time at first, in a little while it will enable the operator to do twice as much in a given time as would be possible by unsystematic methods.

I wish to congratulate the essayist upon the subject he selected for presentation. I do not think there is anything that means more to the public in actual dental service or that means more to the practitioner in remuneration, touching only one practical point of the situation, than the reduction of our dental work to an intelligent system. (Applause.)

Dr. Guy S. Millberry, San Francisco, Cal.

My discussion of the essayist's paper will be confined to the teaching value of system. There is no phase of human activity in which system is so necessary as that which has to do with imparting knowledge. It may be the training of an apprentice at a machinist's bench; the training of a filing clerk in a business house; the preparation of a teacher for her life work in the schools; or a person who is to be technically prepared to enter a profession in arts or science. Wherever it may be, efficiency is based upon systematic orders of procedure, and results are

dependent upon the degree of attention paid to detail in following the system.

We are primarily interested in the results to be obtained in the performance of our work, results by which is measured our success or failure in our profession.

When we enter the ranks of the student-body we are at the mercy of that group of teachers who in the course of time will pass judgment upon our qualifications and perhaps recommend our passing across the threshold of dentistry into the ranks of the profession.

The transitionary period, as well as the practice period to follow, are dependent upon two factors—first, our ability to absorb the knowledge imparted to us, and second, the manner or system by means of which that knowledge is imparted.

The primary factor is individualistic. No matter how conscientous the teacher or how perfect the system, success will not be achieved unless the individual is capable of absorbing knowledge. The secondary factor, however, is of the greatest importance to the student body collectively, for our future usefulness is largely dependent upon systematic procedure in instruction.

We are indeed fortunate in having had a thorough system in operative procedure set up for us, so thorough, so complete in detail as to be unassailable: As the essayist has said, "differences of opinion may prevail," but "the basic principles remain intact nevertheless." All honor to G. V. Black for the good he has done.

What influence has system on the student mind. Orderliness, habit, discipline, attention to detail, thoroughness, all of these are the product of system in technical procedures, and when applied to dental purposes the results are measured only in terms of success.

Regardless of differences of opinion as to the manner of obtaining results, a large group of students profit immeasurably more by following a definite, thorough system than by empirical and disorganized methods. The inauguration of the Black system in operative dentistry in every detail in the University of California Dental School in 1911 has resulted in giving the school a one-hundred per cent. efficiency rating with Boards of Dental Examiners and I attribute it to system.

Dr. Ottolenghi, New York City.

Mr. President and Gentlemen: Dr. Friesell made the statement that a very large number of dentists do not know what a tooth looks like. I want to elaborate on that idea. I think that in operating on a denture in which all the teeth are present, nearly anyone of us can tell whether we are working on the first, second or third molar, and whether we are working on the right or left side; possibly whether we are working

on the upper or lower jaw, but what I think Dr. Friesell means is that if we extract one of the teeth and leave it around the office for a month or so we might be in a quandary to tell where it came from. (Addressing Dr. Friesell.) Is that the idea?

Dr. Friesell. Yes.

Dr. Ottolengui. There is a very nice little game which can be played. I will tell you first the game and then the results. Take a tooth, and invite five or six men to dinner and pass the tooth around and have each man write on a piece of paper his opinion as to where it came from in the human denture, the men who make the worst guess to pay for the dinner. I got six men together that way once and I got a free dinner (laughter). It did not cost the other men much, however, because they had to divide it all up. (Renewed laughter.) I am not joking. This is serious, and there is a certain good point about what I am telling you. I got them together and I said, "I have a tooth, and I would like to have you look at it and make comments upon it." There is a certain psychology about this. I did not wish too clearly to indicate what I was after. I said, "There is something peculiar about this tooth and if you all guess it I will pay for the dinner, and if you do not guess it, I want you to pay for the dinner. I want you to write down on a paper what tooth you think it is, and if there is any peculiarity, to note it." None of them noted any peculiarity, and they all said that the tooth was the first left upper molar, which was not such a very fine guess because it was the first right lower molar. Those men were not students in college. They were graduates with big reputations But they lacked the element of attention.

They looked at this tooth, and they saw at a glance the very thing I wanted them to see, that this tooth had three distinct roots, and so at once they concluded it must be an upper molar, whereas it was a lower molar with three roots.

I want to admit to you (and this does not excuse those men at all) that this tooth had a large cavity which had destroyed about one-half of the occlusal surface, but the distal half of the occlusal surface was perfect, and the distal half of the occlusal surface of an upper molar no more resembles the distal half of the occlusal surface of a lower molar than does a hand look like a foot; there is just about the same degree of resemblance. Now, gentlemen, if you cannot look at a tooth from which a part of the occlusal surface has been removed by caries and have the anatomical knowledge and the imagination to see the rest of that surface, how can you ever expect to restore it by inlays or fillings, or by any other means? It has been said of many good anatomists in museums that if you give them five bones of any animal, they can reconstruct the entire

carcass, and here five gentlemen, because of an aberrational form of root could not restore to their minds the picture of the missing half of a lower molar.

To bring this to a practical point, I want to admit the accusation made by Dr. Friesell and say that when I first undertook the carving of inlays, I had absolutely no knowledge of the fact that there was a material difference between the occlusal surface of an upper and lower bicuspid. And I want to say that to-day ninety per cent. of the dentists who carve upper bicuspids shape them like lower bicuspids. They make a connecting ridge between the buccal and lingual cusps which never exists in the upper bicuspid. At present I can fairly well—not as accurately as these boys who have had the advantage of good technical training in the school, but fairly well—I can carve inlays to look something like teeth. And why? I will give you my method so that all you old fellows like me can get into the game.

In learning to do this inlay carving I selected models of the best set of teeth in my orthodontia cabinet, and whenever I had an inlay to carve I placed this model of thirty teeth in front of me, and I carved the wax as nearly like the particular tooth that I was inlaying, as I could. Two things were accomplished: first, an increasing expertness in the ability to carve teeth; and secondly, an increasing knowledge of tooth forms. (Applause.)

Dr. Fred E. Hart. (Closing.)

Mr. Chairman and Gentlemen: I am very much gratified at the amount of discussion this paper of mine has had, and at the quality of the discussion. It has brought out I think even more fully than the paper, the great value of system in our operative work.

Dr. Friesell has mentioned the great lack of our attention to dental anatomy, to the surfaces which we are making operations on each day, and to the great possibility that so many who are operating are unfamiliar with the surface they are trying to deal with in restoring the tooth to its normal function. As suggested by the discussers, Drs. Ottolengui and Friesell, the remedy for the real lack of knowledge that we find in members of the profession is to be had in very fundamental study in all of our operative procedures. There is no confusion of thought, and no need for confusion of thought or terms in connection with our dental anatomy. Dr. Black has given us a nomenclature, yet we hear a great many terms used for different parts of the teeth which are not authentic and which are not considered in "Black's Dental Anatomy," which has been adopted, as I understand by the Institute of Dental

Teachers as being an authority on that subject. Is that not so, Doctor? (Addressing Dr. Friesell.)

Dr. Friesell. Yes.

Dr. Hart. We hear so many times a person trying to describe the position of a cavity, such as, we will say, the "gingival" margin of a cavity. They will speak of it as the "cervical" margin, the gingival margin being the correct term in the nomenclature for that particular portion of that cavity as given in "Black's Dental Anatomy" and followed throughout his work.

We also find many other conditions of the teeth given incorrectly according to the nomenclature. The surfaces of the teeth that come together are the occlusal surfaces. It is not the morsal surface, in "Black's Dental Anatomy."

I again wish to thank the discussers and I think that we have profited by the discussion, and I am very glad to have presented a paper on this subject.

The Chairman. The Section will reconvene on Monday at 9:00 A. M.

The Section then adjourned.

September Sixth.

The Section met at 9:40 o'clock, in Hall H, on the fourth floor, east side.

Dr. John S. Marshall presiding, Dr. E. A. Tripp, Secretary.

The Section was called to order at 9:40 A. M., by Chairman Marshall.

The Chairman. The first paper is by Dr. Robin Adair, of Atlanta, Ga., on the subject, "Those Having Pyorrhea Alveolaris Can be Cured, But None of Our Patients Should Have This Disease."* I am sorry to say that Dr. Adair at the last moment was summoned by a judge of the Supreme Court of his State in a case of importance. He sent me a telegram expressing his regrets and asking that his paper be read. I have asked the Secretary, Dr. Tripp, to read Dr. Adair's paper.

The Chairman. Inasmuch as the program this morning is all on the same topic, I would like to suggest this, that we hear the papers read, and the written discussions, before we open the subject for general discussion. I would like to have you act upon this, however. I do not want to rule this way except upon a vote.

Dr. Friesell. I will make such a motion, Mr. Chairman.

The motion was duly seconded, the question was put, and the motion was unanimously carried.

The Chairman. Dr. Frank C. Pague, of San Francisco, is the first on the program for the discussion of this paper.

Discussion of Dr. Robin Adair's Paper.

Dr. Frank C. Pague, San Francisco, Cal. In Dr. Adair's classification of various diseases of the mouth, he suggests first the securing of radiographs of different classes of cases presented. That to me is one of the most essential things in connection with successful treatment of such conditions. For several years I have been making radiographs of exaggerated conditions and those of mysterious origin, some of which will be shown for your information and criticism. To me they have proven inestimable, for they show definitely facts that cannot be questioned.

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*See Vol. II. Page 207.

They have assisted in diagnosis, and in "sales talk" to a prospective patient to whom one can show something definite of conditions and explain what is necessary to place the mouth in a healthful condition. You earn a fee that appears beyond reason when first suggested to the patient.

Curetting of the alveolus in treatment of pyorrhea, as suggested by Dr. Harry W. Fletcher, is as necessary as the removal of the deposits from the roots of the teeth. Those rough, ragged edges of process about the roots must be removed, and the surfaces made as smooth as those of the roots. This curetting may be done with suitable sharp instruments, or with a good-sized clean, sharp engine bur.

The essayist refers to the work of Dr. Wm. J. Younger in the development of the surgical treatment of pyorrhea, and pays him just tribute when he refers to the results of his efforts by designating them the "Younger School." To this man I am indebted for my first interest in the treatment of pyorrhea, and the successful results I obtained in my early efforts were due to the encouragement given me by this enthusiast. It was due to the magnetic influence of this man that the Stomotological Club was organized in San Francisco in 1894 and received its Charter to grant an honorary degree: a "Fellow of Stomotology," upon such practicing dentists as were fortunate enough to be members of that organization. Words fail in paying just tribute to Dr. Younger for ideas advanced by him in the successful treatment of pyorrhea at a time when his efforts were ridiculed by our colleges and by the dental profession at large, with statements that pyorrhea could not be successfully treated. And yet, in that small coterie of dentists Dr. Younger was showing the results of his efforts from time to time, and better—how to obtain them.

The essayist speaks in error when he states that the use of lactic acid in the pyorrheal pockets was undertaken with the belief that the lactic acid would dissolve any deposits left by the scalers. The acid was not intended for such purpose, but rather to assist in producing healthy granulations in the pockets. Such has been my mode of procedure for fifteen years in all deep pockets, and the results obtained from such treatment are beyond any question or unfavorable criticism.

Such pioneers as Riggs, Fletcher and Wm. J. Younger in the successful treatment of pyorrhea, deserve all the honor that words can convey, for each of them in his individual efforts obtained results equal to the best obtained to-day with all the scientific knowledge and systematized technique for handling these cases. The curetting of the rough edges of process is just as necessary in the treatment as the removal of the deposits and the lifeless peridental membrane.

The successful technique in the treatment of pyorrhea rests not in the knowledge of how to do it, but in the acquired and cultivated touch

that comes only after years of hard, faithful, studious work, and even then failures are met with, the same as with the medical specialist in his surgical efforts to diagnose and operate on some internal trouble requiring the knife, that results fatally. It is true the proportion of successes in such operations to-day against those of a few years ago when the radiograph was unknown, is very great because of definite diagnosis.

Vaccines and Emetin.

The medical means of treating pyorrhea by serums, et cetera, advanced by Baas and Johns, Barrett and Smith and others, has much merit, but in my judgment cannot possibly result in success without the removal of the cause; and if the cause is removed Nature will take care of the condition without medicaments. And yet, I do not wish to be misunderstood in this statement, for I believe such stimulation is often beneficial though unnecessary. The dressing of the wound after treatment of a deep pocket is quite as necessary as a surgical dressing for a wound in any other part of the body. I have used with great satisfaction the preparations Dr. Adair has referred to for your thoughtful consideration, but since we have had the commercial preparation of ipecac on the market, which we should use with careful judgment, I find myself using it more freely than any other medicinal agent, after which I use a medicinal preparation of gauze for the gingival flap to keep out the secretions during process of healing after thorough surgical treatment of the pocket.

Trauma from Excessive Instrumentation.

I am glad the essayist has referred to the trauma caused by too much instrumentation. Too much emphasis cannot be laid upon this part of the treatment. The roots of a tooth should receive surgical treatment at once. The operator's touch must be so sensitive that the deposits can be readily located and removed with clean, sharp, delicate instruments without repeatedly going over the surface. The tooth being operated upon, "whether a molar with two or three roots, a bicuspid or the single rooted anterior teeth," ought to be finished at the first sitting so that it is unnecessary to give it any after consideration. Nature will take care of the healing if the work is thorough. All that is necessary is the removal of the irritants, be they serumal deposits upon the roots; curetting of the rough edges of the process about the roots; the overhanging filling—and there are many such—the overhanging inlay with the cement with which it is set or the gold crown forced under the gum without close fitting at the gingiva. In my judgment the crown should never be carried to the gingiva, and surely not to the bifurcation of the roots; in fact it should never extend beyond the enamel line.

Fees for Pyorrhea Treatment.

Dr. Adair has touched upon one of the most potent causes for the lack of more interest by the general practitioner in the treatment of pyorrhea—or better still, its prevention—that of the fee. But we as dentists are to blame for that. We encourage this "shopping" for cheaper dentistry. How many members of this Congress of dentists from the four quarters of the earth charge a fee for consultation? How many busy practitioners set apart a certain time each day for consultations and get no fee for the same? Yes, not one cent for their time spent in careful consideration of the case, their advice as to treatment and cost for same—giving their time without hope of remuneration—time that should be spent more profitably in relaxation and rest! Do you know of any other profession thus imposed on? Of any other profession doing business in that way? Would the physician give you of his time? Would the lawyer or consulting engineer, or the architect? Would any other class of professional men give their time and advice and not charge a fee for same? Would any of you go to a lawyer for consultation, and after discussing with him your troubles and gaining his professional advice, say "Thank you, I'll think the matter over," and walk out without asking his fee for same?

Let me suggest a remedy for this great evil—*your* appointment card contains whatever suggestion you desire to impress the patient with in accepting the appointment. *My* card states that all appointments will require a notice of twenty-four hours to cancel same, otherwise a charge will be made for them. It further states that a consultation fee of $5.00 will be charged for a half hour, or less time. These cards are mailed to anyone asking for an appointment for consultation over the phone. So the patient knows a fee is required. The patient who calls at the office for consultation is met by my dental nurse who learns who the person is and how he was prompted to call, and, asking for a consultation, is told that I am busy—that an appointment is necessary for the consultation and that said appointment will cost $5.00. My nurse takes time to explain the cause of the fee, and places the patient in a receptive condition for the consultation. Occasionally, the patient will walk out—that means that he is only "shopping." If he desires my attention, the fee is no object. If the patient is referred to me by a patient whom I have treated, he expects to pay for the consultation; if referred by a dentist, the fee is often resented—the dentist has not prepared him for such a contingency and he appears to think my fee a "hold-up game." The dentist is responsible for this. The general practitioner should explain to his patients the necessity for thorough prophylaxis at stated intervals, and the fee necessary for the time required to do this work.

Where pyorrhea creeps into the mouth of a patient under constant attention of the same dentist, it is a serious reflection on the faithfulness or ability of that dentist, for he should have anticipated the condition and should have instituted preventive methods to eradicate it. If the busy practitioner feels he cannot give to this work the attention which it requires he should train his dental nurse in preventive treatment and have her demonstrate to patients the proper use of the tooth-brush, dental floss and massage of the gums as absolutely necessary for a clean, healthful mouth, and preventive dentistry: that "an ounce of prevention is worth a pound of cure," and that such services must be paid for.

Dr. E. A. Lundy, Los Angeles, Cal.

I think that in my discussion of this excellent paper I should inform you at once that our views as regards cause and treatment are much at variance.

Regarding the classification of the various types of cases presented it would be of great value if the profession could accept some definite form, together with the treatment suited to same, as it is quite essential in order to treat the various cases presented that we should differentiate.

As to the statement that all pyorrhea conditions are the same except in degree I do not find that this obtains in my practice. I find a vast difference in cases presented. I find conditions where there is no calcarious deposit with deep pockets and necrotic alveolus, requiring heroic curettment and thorough removal of the creamy deposit from the roots. I find other cases where there is an excessive deposit of the calculus and but little curettment required. I find other cases where there is comparatively no deposit and no necrotic process, but with great swelling and sloughing of the gums.

As to the Dr. Younger school of dentists in pyorrhea treatment. I had the good fortune to be one of those who was enabled by Dr. Younger's thorough instruction in instrumentation to become much more proficient in my treatments.

Regarding the treatment of pyorrhea by medication; many are attempting treatment at the present time without surgical procedure and I think that this is most unfortunate for those who are being experimented with. A certain amount of medication intelligently applied after the surgical treatment is most helpful.

As to the duty of the dental profession to their patients regarding pyorrhea treatment, I think that they owe it to their patients either to become proficient themselves or else to refer them to some dentist who has the necessary skill to care for their needs.

As to remuneration for the treatment of pyorrhea, I think that if the

dentist is skilful enough to effect satisfactory results he will have little difficulty in obtaining a satisfactory fee.

As to whether pyorrhea can be cured, I tell my patients that it will require their co-operation, as I consider that the majority of cases presented are simply the effect of systemic derangement and require systemic as well as local treatment to effect a cure.

"Pyorrhea alveolaris can be cured but none of our patients should have it." I quite accept this statement but there are two conditions under which it can be effected. The first is prenatal, where the mother has given special care to herself from the time of conception; and later, after the birth of the child has properly cared for same in every way.

I am intimately acquainted with a lady who has been reared under such conditions, and now, at the age of thirty, she has no decay of the teeth and no pyorrhea.

The second, is where there has been proper prophylactic treatment given to patients whose general physical condition has been good and the dentist has been consulted often and he has given the necessary attention to their needs.

The Chairman. The next paper on the program is by Dr. T. Sydney Smith, of San Francisco, entitled, "The Successful Scientific Treatment of Periodontal Disease (Pyorrhea Alveolaris)."*

A Member. I know that Dr. Smith's paper cannot be read within twenty minutes, and he proposed to cut out some portions of it. I would therefore ask that his time be extended so that he may read the entire paper.

The Chairman. The doctor understands fully the statement I made. In order to get through with these papers we cannot extend the time for reading or discussion. What is the pleasure of this body?

A Member. I move that we hear the paper.

The motion was seconded. The motion was put, on the question of hearing the entire paper. The motion prevailed and the paper was read in full.

Vice-Chairman Friesell. The discussion on this paper will be opened by Dr. Marshall.

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* See Vol. II, page 214.

Discussion of Dr. Smith's Paper.

Dr. John S. Marshall.

Mr. Chairman, Ladies and Gentlemen: On account of the great amount of work we have to do this morning, I shall make my remarks very brief, and I shall confine them to my own views as to the cause of pyorrhea alveolaris.

Dr. Smith knows that I take issue with him on this point. Pyorrhea alveolaris, as I understand it, is of constitutional origin with certain local manifestations. It is similar in many respects to scurvy and to mercurial stomatitis. The characteristic differences are as follows: In scurvy we have a very severe congestion and inflammation of the gingivæ, often with considerable hypertrophy of the gingivæ; while in mercurial stomatitis the characteristic diagnostic sign is the ptyalism, but in other respects it seems to be almost like pyorrhea alveolaris.

Not every suppurative condition of the gums and the teeth is pyorrhea alveolaris, in my judgment. There are many cases of chronic gingivitis which have all the symptoms of what is generally termed "pyorrhea alveolaris." When I say all the symptoms, I mean all the local symptoms. You all know that by removing these deposits which we have at the necks of the teeth, or sometimes lower down in the pockets, such removal cures the case. But it has gotten to be the fashion to call everything "pyorrhea alveolaris" where we have pus about the necks of teeth. A great many cures of "pyorrhea alveolaris" are reported which were but chronic gingivitis in my judgment.

Scurvy.

Scurvy in children is cured by giving them orange juice with their food. The only cases of scurvy in children, however, that I have ever seen, have been those that were being bottle-fed and with prepared food, not milk. I never saw a case of scurvy in a child where it was fed on milk. The same is true with regard to scurvy as we find it in adults. When I first entered practice there was a great deal of it, especially among seamen, although we find very little of it nowadays. It originated in lack of proper food. Since the introduction of canned vegetables and canned fruits we do not see scurvy among the sailors. All carry large quantities of these preserved vegetables on shipboard for the purpose of preventing that disease, and it is fed to the men. Consequently, they do not have scurvy as often as formerly.

Etiology of Pyorrhea Alveolaris.

Pyorrhea alveolaris in my judgment comes from improper nutrition of the parts of the general system, faulty metabolism, imperfect elimination and hematogenous bacterial invasion of the peridental mem-

brane, forming bacterial emboli. It is from these emboli, in my judgment, that the serumal deposits are formed and this is the most difficult form of pyorrhea which we have to handle. It requires not only surgical treatment, but constitutional treatment as well. I have made the statement a great many times that I believe pyorrhea as I understand the disease, is a gouty affection; I said many years ago, and it is in print, that I believed that when we arrived at an understanding of the disease we would find that the serumal deposits on the roots of the teeth would have the same chemical composition as the deposits found around gouty joints. Dr. Pierce (who is now dead, but who was for years the Dean of the Pennsylvania School of Dentistry in Philadelphia), three years later came forward with the same statement and proved conclusively, by experiment, that what I had said with regard to the chemical character of the deposit was true, namely, that they were made up of urates of lime and soda.

Remote Foci of Infection Cause Pyorrhea Alveolaris.

A great deal has been written and a great deal has been said in our meetings about oral foci in suppurative conditions, producing systemic diseases, and we all believe it, but little or nothing has been said about remote foci producing pyorrhea alveolaris. I believe many of the cases which we have, are the result of hematogenous bacterial emboli that have been carried in the blood from some remote portion of the body and deposited in the pericementum, which is fibrous tissue very similar to that which surrounds the joints. Our medical friends all tell us that joint diseases, particularly arthritis deformans, is caused by these emboli, the bacteria being carried from some remote part of the body and deposited in the region of the joints, and that these emboli interfere with the circulation. We know when we have poor circulation in fibrous tissues we are very apt to have degenerative changes taking place. So I believe that in many of the pyorrhea cases if we could trace back, we could find that there was some suppurative focus elsewhere in the body, which if cured would have prevented the pyorrhea.

Devitalized Teeth Affected with Pyorrhea Incurable.

I think we make a mistake in devitalizing so many pulps. When pyorrhea attacks a devitalized tooth there is not much hope for it, and my opinion is, the sooner it is extracted the better it will be for the patient.

I also believe that a great many cases of pyorrhea alveolaris are due —I am speaking now of the local condition—are due to injury to the tissues. For instance, if you devitalize a pulp you may remove it and fill the canal ever so perfectly, and it may serve for years without any trouble, but suddenly there will be an abscess formed at the root of that

tooth. The tissues about that tooth are not resistant to the same extent that the vital tissues about a vital tooth are; consequently, when bacterial invasion takes place through the blood you have the abscess.

Injuries Caused by Wedging.

I believe also we do great damage to the surrounding tissues of a tooth by our methods of rapid and vigorous wedging. We injure Sharpey's fibres, and they never reunite after they have once been severed. It is at these points where we have pyorrhea most often attacking the tooth, that is on the approximal surfaces, and I believe a great many of these cases are due to our method of rapid wedging.

I have seen men like old Dr. Allport, who believed in that, take a piece of orange wood, whittle a wedge, and with a mallet weighing two ounces, hammer it in, as he would hammer a nail, to get space to work, I used to tell him that if I was his patient I would knock him down if he did that to me; and the old gentleman changed his practice very materially along these lines after I became associated with him. Neither do I believe in using the screw wedge for forcing the teeth apart. You certainly do damage to Sharpey's fibres which hold the tooth in place, and keep it from turning or twisting or tilting, and when you destroy these on one side, it will begin to tip towards the opposite side. And there is where you will find the deep pockets in pyorrhea where these injuries have been infected. But I must not say any more. (Applause.)

Dr. H. G. Chappell, Oakland, Cal.

Mr. Chairman, Ladies and Gentlemen: When Dr. Smith asked me to discuss his paper he said that he did so because he thought I would oppose certain statements which he had made, but after a careful perusal of it I find so much worthy of commendation, and so little that I can conscientiously oppose that I have determined to just call attention to a few salient points and let someone else do the criticising.

The paper greatly impresses me in two ways. First, it contains a great truth, which if conscientiously and earnestly applied in all our operations on the human mouth, will mean much for the advance of dental science and the eradication of disease. I refer to the avoidance of laceration of the soft tissues, or in other words, the sympathetic handling of them and a comprehension of the part which Nature plays in the fight against disease and the restoration of the parts to a condition of health.

While this thought is not new, it needs constant emphasis and a wider comprehension and adoption by the profession as a whole. I think that the author of the paper has carried us a little farther in this direction than any of the leaders who have striven so hard in the past to get us to work with Nature instead of feeling that we can cause healing by forcing Nature into the right path.

Reattachment of Pericemental Tissues.

Second: the paper emphasizes the crying need for more definite knowledge of the tissues upon which we operate and the processes which Nature employs in keeping them in a state of health or restoring them to health after having been attacked by disease.

For instance, the writer tells us that he has been able to secure vital reattachment of the pericemental tissues to a vital tooth, after they had been separated by disease. Now, while he believes it and I believe it, that does not prove the contention. As far as I know at the present time we have only demonstrations of touch with an instrument. Research up to the present time has proven positively that tissue cells will grow in proper media outside of the body, and we have good reason to believe that they would grow in this pyorrheal pocket after it is thoroughly cleansed. They grow best along the course of a fibre, and what better fibres could you have than the fibrin of the blood, which has been left in the pocket by the method outlined, but which would be destroyed by the introduction of drugs and chemicals? While this evidence may seem convincing, and I am free to confess that if there is not a vital reattachment of the tissues, it is an elegant imitation, yet I do not consider it absolute proof. Much research work should be done in this direction in order to prove its possibility beyond any shadow of doubt.

Nutrition of Pulpless and Infected Teeth.

Again, what do we know positively about the nutrition of the cementum of a non-vital tooth affected with pyorrhea and also by an apical alveolar abscess? And yet, men in the past have advocated the devitalization of pulps in order to aid in the cure of pyorrhea. The writer of the paper contends that by so doing, an injury is done to the patient. Yet, these conditions exist in the mouths of many patients and we should have definite knowledge as regards the danger of retention of a tooth in this condition or the possibility of its restoration to health. A theory may seem to be good and logical, but definite knowledge is better.

In the matter of the nutrition of the cementum in vital teeth, we have not a unanimity of opinion even among well-informed men. Personally, I believe, as does the author of the paper, that there is an interchange of nutriment between the pulp and pericemental tissues and that the cementum may receive nutriment from the pulp even after the pericemental tissue has been stripped from a portion of the root by disease, and that for this reason (there are many other reasons) the vitality of the pulp should be retained. Yet, I am keenly aware that my belief does not prove the case, and I want to emphasize the great need for research in order either to prove or disprove the theory.

In the writer's statement of the conditions "prerequisite to a cure," I believe he has made a statement that will stand the test of close scientific scrutiny.

First. Absolute necessity of having freshly exposed cells on all the surfaces which are to take part in the process of healing.

Second. Important that none of these freshly exposed cells (including those of the blood) be impaired by the introduction of foreign agents into the wound.

Noyes, in his work on *"Dental Histology and Embryology"* (page 189), has voiced the same idea, and yet we find men who are still trusting mainly to antiseptics, tartar solvents, and endamebacides in their endeavor to obtain a cure of pyorrhea.

A thought in regard to the statement of the author that the tissues heal less rapidly after treatment by emetin is this: We know that emetin destroys the life of the endamebæ which are in the tissues and this would mean that their dead bodies would be so much foreign protein left in the tissues that would be toxic to them and would thus lower the vitality and recuperative powers.

Thus the surgical treatment should not be given until the tissues have had an opportunity to rid themselves of the toxic foreign protein.

I think that the writer's method of removing the dislodged calculus from the pyorrheal pocket is far superior and more effective than any amount of washing. While there is much that we do not know about the antiseptic properties of the blood and the cells, I believe that Dr. Smith is on the right path in abolishing all germicidal agents in his treatment of these pyorrheal lesions. We know that germicides are poisons and that they depress the vitality of cells even where they do not kill. We also know that it is an impossibility for them to reach and destroy all the pathogenic organisms in a pyorrheal pocket without destroying the surrounding tissues, and even if this were possible we could not keep the parts sterile for any great length of time. So as we are obliged to rely upon the tissues themselves to overcome these pathogenic invaders it is only common sense to avoid anything that depresses the vitality of the cells and renders them less able to perform their functions. That the tissues are able to overcome the infection without the use of artificial germicides and that they do this better without than with them has been proven many times.

The thoughts and facts which the writer has presented to us, represent to me the high-water mark in the treatment of pyorrhea and I sincerely hope that they will obtain the careful consideration of thinking men which I believe they deserve.

The Chairman. The next paper is by Dr. C. Smith Long, of Portland, Ore., on "Mental and Co-operative Dentistry."*

A Member. Dr. Long is sick in Portland, and it is practically impossible for him to be here.

The Chairman. The next paper will be on the subject of "Pyorrhea Alveolaris," by Dr. John S. Engs, of Oakland, Cal.

The Member. Before Dr. Engs speaks, should we not take some action on this other paper?

The Chairman. I will entertain a motion that it be read by title.

It was moved and seconded that Dr. Long's paper be read by title.

The Chairman. This means that it will be published in the Transactions.

The motion was duly put and carried.

Dr. John S. Engs then read a paper on "Pyorrhea Alveolaris."**

The Chairman. Dr. Engs did not select anybody to open the discussion on his paper. Consequently, I will announce that the subject of pyorrhea this morning is open for general discussion.

Discussion on Papers Presented and on the General Subject.

Dr. Lundy. In regard to Dr. Smith's paper, I was very pleased to have heard this excellent paper, and there are some things which are exceptionally good, to my mind, but there are other things with which I would take issue. In the first place, the doctor treats simply from the local standpoint. Now this is exceptionally good up to a certain stage. We can treat these cases from the local standpoint, as many are doing, and obtain excellent results, but in my opinion the majority of cases are those not only of local but systemic causation, and in treating these I think that we obtain more lasting results by resorting to systemic as well as local treatment.

In regard to the removal of the deposits from the crowns of the teeth, I take issue with the doctor. I think that we should remove all deposits and roughened surfaces from the crowns before we enter upon the root surface treatment, because I think that we are leaving infectious material when not doing so.

Pulp Removal in Pyorrhea Cases. As to the removal of the pulps, where there is a great recession, where the cementum is possibly two- or three-fifths exposed, I find that my patients are better satisfied and are more comfortable if in

*See Vol. II. Page 229.

**See Vol. II. Page 235.

those cases I remove the pulps. After removing them I take great care to fill to the apex, and to be sure that I have filled to the apex I have radiographs taken of the case so as to prove it.

Dr. L. P. Haskell, Chicago.

Mr. Chairman and Gentlemen: I do not rise to discuss the subject of pyorrhea. I simply rise to relate an incident. In 1883, at the International Dental Congress, in Chicago, I made the acquaintance of Dr. Younger. The next year I was in San Francisco, and I called upon him and he soon called me to the chair to see a patient, a lady who said that six years before she called upon a dentist in San Francisco to consult him for the treatment of loose upper molars. The dentist said, "They are of no use, the sooner they are out the better." She said, "I have heard that Dr. Younger treated bad cases successfully." "Madam," he said, "The Lord Almighty could not restore those teeth permanently, and the sooner you have them out the better." This was six years before I saw that lady in Dr. Younger's chair. I was astonished to see how firm the teeth were. I was more astonished to see how the gum tissue was restored and that the gums were perfectly healthy.

Two or three years ago a gentleman in Chicago called upon me to consult me in regard to a full denture. He was sixty years of age. He had had no natural teeth since childhood, and he said that no dentist had ever been successful in giving him a satisfactory denture. He told me that when he was eight years of age he was taken to Dr. Allport for loose teeth. The doctor treated him for two years. At the end of the two years, when he was ten years of age, the teeth all but two or three had been extracted or had dropped out. That was the remarkable case of a child eight years of age having pyorrhea since the age of seven, and he had been all those years without any teeth, natural or artificial. It was quite a remarkable case of pyorrhea occurring so early in life.

With regard to Dr. Allport's wedging, I can corroborate what Dr. Marshall says. I was associated with Dr. Allport for eleven years, and I have often seen him drive a wedge in between teeth with a mallet. It seemed unmerciful and cruel, but he did it a great deal. Dr. Allport in my estimation aside from that, was a most remarkable operator. (Applause.)

Dr. R. M. Withycombe, Sydney, Australia.

Mr. Chairman, Ladies and Gentlemen: I have listened with extreme interest and very great pleasure to Dr. Sydney Smith's paper. I have attended his clinic and have learned something which will remain with me throughout my career. I refer to the internal treatment of the pockets and the instrumentation with which Dr. Smith performs his cures in pyorrhea alveolaris. At this stage, I must now, however, take

exception to two very important opinions of his, and in so doing I claim to have had many years experience, and to have had more than a fair share of success in the treatment of pyorrhea in Sydney.

Polishing Teeth in Pyorrhea Treatment.

First, in connection with polishing the teeth; I insist that we must immediately polish each and every tooth before we commence the treatment. To leave microbic plaques around the gingival third of a tooth after having treated the pocket can be nothing but a menace to the cure. I do this with an application of iodin on wooden points, revolving in the drill. Soft calabash wood I find preferable, which I obtain from northern Queensland. I can more successfully polish a tooth by this means than with the rubber cups which are provided by the trade.

I likewise take most serious exception to Dr. Smith's opinions on sterilization. I understood the doctor to say that it is impossible to destroy pathogenic micro-organisms without boiling or soaking in a germicide.

Dr. Smith.

Or in an agent which would be equally destructive.

Dr. Withycombe.

To cure pyorrhea alveolaris rapidly I would adopt Dr. Smith's instrumentation, but I would then leave the constitutional treatment in the hands of the medical men. Every case of mine must be under medical treatment. That requires no argument. Then the oral cavity is under my charge, and I now introduce my treatment through the tissues, and I only call on you gentlemen to substantiate what Dr. Rhein has made public lately, that the periapical area of any tooth can be sterilized in a few minutes by zinc ionization. That should be sufficient to prove that we can kill micro-organisms in the tissues, and I do so by introducing the medication, zinc chlorid through the tissues with a large electrode. In this way I claim that I can very rapidly, within a week, clear up many, many cases of pyorrhea which have not a history of too long duration.

Use of Faradic Current in Pyorrhea.

I now come to what I believe I am alone in the world in doing, that is, I know of no other dentist who is using the Faradic current to aid him in the treatment of pyorrhea alveolaris. My claim is that we must introduce fresh arterial blood through the stagnated area which always invests the dead tissue, if we wish rapidly to cure that case. I couple with the galvanic current the Faradic current, and in that way very quickly eliminate dead bodies. These dead microbic organisms otherwise are quickly eliminated from the tissues, into the circulation.

Dr. J. Von Wertheim, San Francisco.

I would like to ask whether emetin destroys the tissues so as to prevent regeneration? Is that the rule or the exception?

And also in regard to the comments of Dr. Marshall, which were very instructive, whether faulty metabolism, or the gouty diathesis is one of the predisposing or constitutional causes of this condition? Do you find any greater proportion of pyorrhea alveolaris existing among beer drinkers or meat eaters, that is to say, those who eat excessively of proteids?

Dr. M. Weiss, Havana, Cuba.

Mr. Chairman, Ladies and Gentlemen: I have many things to say, but I cannot say them easily in your language. We dentists are all interested in attempting to cure this terrible disease called pyorrhea alveolaris.

I agree with Dr. Marshall when he says that many of the cases which are thought to be cured are not in fact really cured. We do not always make a thorough bacteriological study of the pathogenic aspects of pyorrhea alveolaris, and that is the great question which is before us.

Inasmuch as we do such good work along the line of education in the Old World by means of our International Federation, and inasmuch as we have done such good work in the organization of this great Congress, I suggest that we get some of these great men from this and other countries to work along that line only, of pyorrhea alveolaris, and every year or two years have a meeting, and the conclusions reached at those meetings would be of great value to the profession.

I have to say that Dr. Smith's paper was one of the most valuable papers of the Congress, but I want to ask him, does he think that the alveolus may harbor infection in many cases of pyorrhea alveolaris? May not the osseous tissue be infected?

Dr. Smith.

Those tissues become infected eventually, but only as a result of the first infection.

Dr. Weiss.

We agree in that, but I ask you, why do you not trim that alveolus, the surface of which is dead?

Dr. Smith.

I do remove any that is dead, but I am extremely careful in not removing too much. For instance, in the case which I cited, Dr. Fletcher went into the antrum, and that is altogether too far.

Dr. Garrett Newkirk, Pasadena, Cal.

Mr. Chairman, Ladies and Gentlemen: I make it a point never to miss an opportunity of emphasizing one thing with reference to the treatment of pyorrhea, which is seldom mentioned in these discussions; the mechanical part of the treatment. Seldom do we find a case of pyorrhea

where the teeth involved occlude perfectly or naturally. Seldom do we find a case where they are not sufficiently detached from their fellows so that they have undue movement.

Correction of Faulty Occlusion.

Now, I care not how much polishing you do, how much treatment you give by emetin or anything else, if you do not correct the occlusion so that those teeth meet without undue stress, without undue lateral movement, you will not succeed. And unless you restore those teeth by inlays or fillings, so that they are held firmly one against the other, at the approximal contact points, you will not succeed in treating such teeth, no matter what means you use medicinally or surgically or otherwise; that must be done. I have had cases where I succeeded with very little treatment, aside from mechanical treatment and support of the teeth involved. And our modern inlays are the ideal resource where you have cavities which are compound, occlusal and approximal. Often I see cases where the involved teeth have been left, so that they strike first, when the jaws are closed, or strike at a disadvantage, so that they will move one way or the other, with each closure. That is neglected. Everything else is done, but that is forgotten.

I thank you. (Applause.)

Dr. R. W. Rule, Walnut Creek, Cal.

Mr. Chairman, Ladies and Gentlemen: I would like to call attention to one fact in connection to what has been said by several this morning as to the term "pyorrhea alveolaris." Dr. Smith has chosen, and I am glad to hear it, to call it not pyorrhea alveolaris, but "peridental" or "periodontal" disease, which is a much better term than pyorrhea alveolaris, which, as we well know, means in plain English a flow of pus from the alveolus. The subject this morning under discussion in all these papers has been not strictly pyorrhea alveolaris, but diseases of the periodontal tissue.

I am glad to say that it has been my privilege to watch Dr. Smith operate, on a number of occasions, and not only to watch him operate, but to see the results from his operations, to see his results. He does get results. I have seen them. I am also glad to be able to say that not only have I seen results from Dr. Smith's own work, but from following out his methods I have been able to corroborate them in my own endeavors, to corroborate the fact that there is reattachment of the pericemental tissue to the roots of the teeth, and that it is not an ankylosis. You may call it cicatricial tissue or what you please. It has not been scientifically and microscopically proved just what the character of this attachment is. It is to be hoped that further scientific investigation will settle this point for us in a scientific way and from an histological standpoint; but it has

not been proven as yet. However, we do get in a practical way the results which Dr. Smith has claimed. It is a pleasure to be able to corroborate the statement of Dr. Smith's paper in this way, and I am sure that those who would follow out the treatment intelligently and scientifically will find that the statements which he has made and the claims which he puts before us are essentially correct, although as Dr. Chappell has said in his discussion of the paper, there are some things which yet remain to be proven from a scientific standpoint. (Applause.)

The Chairman.

Inasmuch as Dr. Adair was not present to defend his paper, I will call upon Dr. Smith, who is present, to begin the closing discussions.

Dr. T. Sydney Smith, San Francisco.

Mr. Chairman, Ladies and Gentlemen: It gives me great pleasure to reply to the discussion of my paper, and I only wish I could sum up the things I have to say in a logical way, and have sufficient time to go into detail.

Reattachment of Pericemental Tissues.

I believe that the vital reattachment of the soft tissues to the roots of pyorrheal teeth, which means the complete obliteration of the pockets, is the only result which can be accepted as constituting a cure of these lesions. This result is the standard by which we must judge the value of any method of treatment which may be put before us.

I am aware of the fact that we lack microscopic proof of the reattachment of these tissues, but I hope some day to be able to produce such evidence. It must be remembered that evidence of this character is difficult to secure. For instance, if I should agree to treat the pyorrheal teeth of even a tramp, and afterwards to remove these teeth with some of the surrounding structure, I would not have the conscience to do so after they had been cured. I have tried to secure dogs with pyorrheal teeth for experimental purposes, and have searched dog hospitals for them. There is no difficulty in finding dogs with pyorrheal teeth, but they always belong to some person who will not part with them. Even if I were to treat the teeth of a dog, probably the tissues would not quite correspond to the human. Although someone should claim to have proven that the tissues do not reunite, by treating teeth, and finding later that the tissues had merely tightened around the roots, I would not accept it as evidence; it would merely show that his surgery had not been thorough.

I wish to ask those of you who examined the teeth of the patient I presented at my clinic as a cured case, if you have any doubt that the tissues are reattached? The pockets, which were from five to twelve millimeters in depth when I treated his teeth over five years ago, are en-

tirely obliterated. Radiograms of his teeth show a condition of the tissues which could only result from a vital reattachment.

In order to show that old age does not make the reunion of these tissues impossible, I shall refer to another case, one which I have already reported. This patient, a lady over 90 years of age, had a pyorrheal pocket nine millimeters in depth around one of her lower incisors. I operated on this tooth on a Saturday, and examined it again the following Wednesday; at that time the instrument would not pass beyond two millimeters into the pocket without cutting the tissues. I examined the tooth a year and a half later, and was surprised to find that, although she was then past 92 years of age, had neglected the cleaning of her teeth, and wore a partial plate, the instrument would not pass more than two millimeters beneath the margin of the gum. The tissues below that point had a healthy, pink appearance. Had there not been a vital reattachment, the instrument would undoubtedly have passed to the bottom of the original pocket.

This is new teaching, therefore, I must not expect all to accept it immediately. It is gratifying, however, to find that many leading men all over the world have already accepted it.

Reply to Dr. Marshall.

I am very sorry to hear Dr. Marshall say that he still thinks uric acid may cause pyorrheal lesions. This, and similar mistaken theories regarding systemic conditions causing these lesions have been largely responsible for the slow progress made in combatting pyorrheal diseases. Therefore, I cannot let this statement pass without recording a protest. The securing of a vital reattachment of the tissues to the roots of pyorrheal teeth, a result which is new and revolutionary in dentistry, has done much to show the relation which actually exists between pyorrheal lesions and systemic diseases. I have found that correct prophylactic measures will absolutely prevent pyorrheal conditions from occurring, even in the mouths of patients who are suffering from the systemic diseases which were supposed to cause pyorrheal lesions. I have also found that when pyorrheal lesions have developed in the mouths of these patients, they can easily be cured; and when the oral septic foci are removed, the systemic diseases are either greatly improved or permanently cured without any other treatment. This proves very conclusively that oral septic foci may cause systemic and organic diseases, and that systemic conditions exert merely a slight contributory influence on pyorrheal diseases. Recently I treated the teeth of a patient who was in the last stages of diabetes and found that the tissues reunited very readily to the roots. It is significant that the men

who have written the most about systemic causes of pyorrheal diseases, claim that these lesions cannot be cured.

Sterilization. In discussing the use of endamebacides, I shall refer briefly to Nature's method of sterilization. Apparently every living thing large enough to contain another living thing is subject to invasion by parasites. Protozoa frequently play the part of host to smaller protozoan cells, and even the nucleus of ameba and paramecium are often infected by parasites. This does not go on, however, without an effort on the part of the cells which become the hosts, to destroy them. If we introduce the erythocytes of one animal into the blood stream of another animal of a different species, a reaction will at once take place. A hemolytic agent will quickly be provided which will break down the invading erythocytes.

The paramecium will live in the blood stream of a rabbit or guinea pig for several weeks. This shows that the normal blood of these animals is not very harmful to the paramecium. They will eventually be destroyed, however, and when the blood of this rabbit or guinea pig has undergone change enough to kill them, it will quickly destroy a new colony.

The introduction of bacteria into the tissues of the body stimulates the production of antibodies. The specificity of these antibodies meets even the exact degree of virulence of the organisms.

In the light of these facts it is reasonable to assume that the presence of endamebas will stimulate the production of endamebacides in the tissues.

The fact that the tissues heal rapidly after proper surgical treatment, shows that the use of artificial endamebacides is unnecessary. The healing of the tissues, after the introduction of artificial endamebacidal and germacidal agents merely proves that Nature can heal in spite of these irritating and destructive agents.

I thank you.

Dr. John S. Engs. Mr. Chairman and Gentlemen: I have very little to say in regard to the paper I read myself, but I would like to say a few words in regard to some of the other papers, if I may.

I think one of the greatest weaknesses amongst practitioners of dentistry is evading the responsibility of doing things which we should do. There are two reasons that make it difficult for us to do those things. One is the false status of dentistry in the eyes of the law, and another is a lack of courage on the part of dentist. Frequently we speak of teaching nurses to do the work of oral prophylaxis and hygiene. We speak of employing the services of a regular practitioner to attend to the constitutional

side of the treatment in our pyorrhea cases. I think that is all wrong. Dentistry can never rise to the plane which it should occupy if we continue to shirk responsibility in that way. If our dental students to-day are not educated along the line that they should be, the fault is with the colleges. First, we do not want to do plate work. We shift that on to the laboratories. Then we do not want to do too much filling, so we make a wax pattern and let our mechanic make the inlay. Now that pyorrhea alveolaris occupies a prominent field in dental practice we are trying to evade the real issue. It is nursing in every case that assists Nature to accomplish a cure, and whatever remedy we use we do not cure the case. Nature does that. All that we can do is to assist Nature, and it is nursing nine times out of ten that produces the result. I told a young lady recently that I believe there is nothing that men could do, that women cannot do better than men, and I believe it is true, for the reason that they do it more carefully.

I think we should consider those points, and that we should do the treating ourselves, and do the oral hygiene work ourselves, and not rely upon our nurses. My wife's uncle told me when I started to study dentistry, "You are making a mistake." He said, "That is women's work. Medicine and dentistry are something that belong to the women. It is not man's work." And it looks very much to me as if we are trying to make it women's work and throw ourselves out of a job. I thank you.

The Chairman. That closes the discussions for the morning.

Thereupon adjournment was taken until the succeeding morning at 9:00 o'clock.

September Seventh.

The section met September 7, 1915, at 9:30 A. M., and was called to order by the Chairman.

Dr. Claude Emory Markey, Pasadena, California, read a paper entitled "Pyorrhea Alveolaris and the Constitutional Relationship to it and Other Dental Diseases."*

Dr. Frederick Hecker, Kansas City, Missouri, read a paper entitled "Some Studies of the Histopathology of Pyorrhea Alveolaris."**

Dr. Harold I. Horner, Richmond, California, followed with a paper entitled "The Relation of the Endamoeba Buccalis to Pyorrhea Alveolaris,"*** which was illustrated by numerous slides.

Dr. Thomas B. Hartzell, of Minneapolis, Minn., read a paper entitled "Emetin versus Surgery in the Treatment of Pyorrhea."****

Dr. J. C. Jones, of Portland, Oregon, read a paper entitled "Surgical Treatment of Pyorrhea Alveolaris."*****

Discussion of the Papers by Drs. Markey, Hecker, Horner, Hartzel and Jones.

Dr. J. Sidney Smith, San Francisco, Cal.

Mr. Chairman and members of the Panama-Pacific Dental Congress and guests: Recently Doctors Bass and Johns published a statement that the endamoeba is the positive cause of periodontal disease, and that emetin hydrochlorid is a specific for its cure. This statement has received more rapid and widespread publicity than anything that has ever come out in the dental profession.

Dr. Horner has presented this so thoroughly and clearly to us that in referring to his paper I must refer to Dr. Bass principally in making my statements, and the fact that Dr. Horner has selected me to discuss his paper, knowing in advance that I oppose many of the essential points of Bass's teaching, shows that he has a broad-minded spirit, for which Dr. Horner should be commended.

Regarding the etiological relation of endamoeba buccalis to these

*See Vol. II. Page 241.
**See Vol. II. Page 254.
***See Vol. II. Page 269.
****See Vol. II. Page 306.
*****See Vol. II. Page 311.

diseases, at the present time none of us can say absolutely that they have no relation. The fact that endamoeba histolytica seems to emit a toxin from its ectosarc may mean that the organism may not devour tissue, but that it absorbs it, and these facts are so closely associated that one of the investigators of the University of California believes they are the same medically and feels that we are not safe with our present knowledge to say absolutely that they are not etiological factors.

Regarding healing, that is a vital point upon which so much dentistry depends. Dr. Hecker has given me the greatest support for the reason that I have contended for years that vital reattachment could take place. He has shown the scientific reason for this. It is not absolutely essential that the pericementum—and I say pericementum, not peridental membrane, because it is not a true membrane—should take any part in this healing process. According to the work of MacEwen, regarding the growth of bones, and Dr. Hecker is of the same opinion, the cementum has the power of rebuilding.

I would say that we should limit the use of emetin at the present time. I would further say that we should not use emetin hydrochlorid merely because some of the advertising firms tell us to do so. We should use it strictly for experimental work, and that brings me to one thought, namely, my experimental work shows that emetin hydrochlorid may be harmful and I have proven conclusively, I think, that we do not need it. We have found in our experimental work and also in nasal work and work on the sinuses, that it has a marked hemostatic action for the first day or two, after which a great difference is noticed. We have no exceptions to this.

Instead of normal healing, there is no bleeding, but a seepage starts and keeps up from one to two weeks. That suggests an action of emetin hydrochlorid on the blood which interferes with the healing process. There is no operation on the body in which it is more desirable to have rapid healing than in this work. We have no right to use emetin except for experimental work to test its action.

Dr. Handley Miller, Sacramento, Cal.

The first thought I would like to present is just this, for the good of the general public: I wish that all of the members of the dental profession were Sidney Smiths. I think that he stands preeminently above all pyorrhea men I have heard and followed. I cannot discuss anything that he has said other than favorably, because I do believe in the surgical treatment of pyorrhea alveolaris, but I want to leave this thought with you: We are not all Sidney Smiths and I do not pretend to be a specialist

on pyorrhea. Pyorrhea only comes to me in my general practice; therefore, I must adopt some method whereby I can give my patients some relief, and inasmuch as they cannot go to a specialist to receive treatment they must receive such treatment as I am able to give them.

I am a believer in the theory advocated by Dr. Bass. I believe it is logical. The medical profession are working on that same theory with regard to the other organs of which we will hear much later on. I have had clinical experience of over one year with the use of emetin and I am reminded of my first case which I will cite briefly. This case has not been treated or touched for over eleven months, except the general care of the teeth, by the patient, who, I will admit, is more particular now than he was formerly. But that patient is absolutely free from pus in the mouth today. I think I can safely say that nine-tenths of the patients who are treated with emetin, together with the regular scaling such as they receive at the hands of the average dentist, find that the condition clears up. Their mouths are in excellent condition, from a microscopic point of view. The tissues are normal, particularly the gum tissues; the teeth are tighter and seem to be giving good service; but the real point is that nine-tenths of the patients have forgotten about the mouth conditions; they say they can eat anything;. that their stomachs feel better; that the pain in their shoulders is gone; that the swelling around their big toe, has disappeared or make some other such remark.

I am not trying to enter the field of the medical man. On the other hand, I want the dentist to take care of his own field. I do not say that every disease comes from the mouth. I am not as radical in this as some men are. I do hold, though, that there is a vital connection.

Another point I want to bring out is this: The surgeon who would like to render his patient the best service and to secure the best results must require that the body be built up before he performs a serious surgical operation. In the last three months I have had several cases brought to me for cleaning of the mouth before the performance of a surgical operation. I was enabled to free the mouths in a short time by the emetin treatment. It is true, I have had discouragements and failures with emetin, but for the past several months I have not had a single case in which I have not eliminated the pus macroscopically. I have done it almost entirely by the intravenous method and by the local flushing of the pus pockets. I do not inject the tissues of the mouth with a sharp needle, but prefer to flush out the pyorrheal pockets with a solution very thoroughly and scale off the teeth as best I can and I get my results in that

way. I do not claim that emetin is a cure for pyorrhea, but I do think it is certainly a first aid.

The Chairman. We have had this morning three extremely interesting papers read, and I now declare the subject open for general discussion. I think, however, it would be a good plan for each speaker to mention the particular paper he is going to discuss when he rises to speak.

Dr. H. L. Seager, San Francisco. I wish to refer to a contrasting statement made by two gentlemen. I simply rise for information, and I would like to ask Dr. Hecker how it is that in his exhaustive examinations of these many slides, he has never seen an amoeba? We have accounts from eminent men who undoubtedly have followed the best technique just as he has, yet who have seen amoeba. Now, I would like to know the reason for this and why it is that the amoebae decline to meet Dr. Hecker, or is the presence of the amoeba a figment of the imagination? I would like to know how that can be and how these two statements can be made from the same platform.

Dr. John Robertson, Napa, Cal. I would like to relate one or two experiences I have had with emetin, but I do so by way of caution for the rest of the members of the profession. I have used it in about three cases, and was rather pessimistic at first.

In the first case I used emetin upon a patient who was addicted to the use of alcohol. The result was that in the course of ten days time he developed a severe case of acute nephritis, which was followed by general anasarca. You know what that means, and you know it is a serious condition. The man was brought to San Francisco; he spent several weeks in the hospital and was subjected to the usual treatment, with the result that he recovered. There has been no more pyorrhea because he has not used any more alcohol. I am inclined to think that the alcohol was the cause of the nephritis; at the same time, I want you to remember that I used emetin in this case.

I used emetin in two more cases, intimate friends of mine, and I was afraid they might think, if I did not use it, I was not up to date. (Laughter.) The first gentleman told me that he felt very sick the next day; that he had a severe headache and his digestion seemed to be considerably impaired. The next case I used it on had the same train of symptoms as the second case. That ended my use of emetin.

Causes of Pyorrhea Alveolaris.

I would like to say a few words concerning my idea of pyorrhea alveolaris. Pyorrhea may be caused by local mechanical irritation of any kind, and it is also produced in many cases by causes acting from within. You may call it faulty metabolism or what you like. I recall having had a beautiful case of pyorrhea produced by tying ligatures on a patient's teeth and that patient going off into the country and failing to show up for three or four years. That, of course, would naturally make the teeth sore, and in this case the teeth were ready to drop out. There was a striking case of pyorrhea resulting from mechanical irritation. The ligatures became infected through fermentation and were wedged underneath the gums. I was almost in despair because the teeth were so loose that I thought they were going to drop out, and I removed the ligatures very carefully. I tied them up again in order to anchor them and sprayed the teeth. I did not use any emetin. I used mild antiseptics and cautioned the patient about keeping the mouth clean. The result was a splendid recovery.

The first case I have cited was an interesting one inasmuch as it had been under the care of some of the best men, men who are well up in the medical profession, and other pyorrhea specialists. He finally drifted back to me in despair. This case was pronounced by the first practitioner who saw him, a very competent medical man, as being a case of flat foot, with breaking down of the arch. He had been troubled in that way for two or three years before he consulted me in reference to his teeth. At the time the teeth began to be affected there was undoubtedly a pyorrhea existing. I found that was the case and that the disease began undoubtedly from within. It may have been due to the ingestion of the alcohol, producing the organic trouble with the kidney and to faulty elimination.

Dr. Joseph von Werthern, San Francisco.

In regard to the treatment of pyorrhea alveolaris, the use of emetin hydrochlorid is one of the many notable achievements of modern medicine and dentistry. The use of emetin, like every other new procedure, has suffered more at the hands of the over enthusiastic and zealous friends, than from the most pitiless criticism of the enemies of emetin.

Dr. E. A. Lundy, Los Angeles.

I would like to relate a few instances in which I had supposed, before coming to this Congress, I was obtaining good results from the use of the different preparations of emetin. I began with the one half per cent. solution which was first recommended and

I thought I was obtaining results from it. In one instance there was a profuse flow of pus from a right lower second molar. There was exposure of the wall to the apex on the distal side, also on the buccal. I resorted to thorough instrumentation as well as thorough curettement, using emetin first, however, and I was able to check the flow of pus before commencing the instrumentation. After the instrumentation I used milder solutions of the emetin, and also antiphlogistic treatment externally. Since hearing the papers and discussions and seeing the slides that have been presented, I would hesitate to say that I received benefit from the emetin treatment. I should rather feel that the results were due to the thorough instrumentation than to the emetin.

Dr. M. Weiss, Havana, Cuba.

I am very much interested in the subject of pyorrhea alveolaris. In the first place, I wish to congratulate Dr. Hecker on his splendid presentation of the histopathology of this disease. I think we must admit that here in America, as well as in England, good scientific work is being done with reference to this disease. We must regard the work of Dr. Hecker as an interesting scientific contribution to the subject. It is by having such researches that we will be able, I hope in the future, to adopt a reliable method of treatment for the cure of this disease.

With regard to the cure of cases of pyorrhea alveolaris, I have been working along that line and have treated many, many cases. We have had various theories advanced at this meeting, but very few facts. We have heard it stated here by dentists that thousands of cases of pyorrhea alveolaris have been cured, but the evidence does not show whether these cures are temporary or permanent. It is true, we may obtain a temporary cure of the disease by emetin hydrochlorid and by instrumentation. A permanent cure is a different thing. Many cases diagnosed as so-called pyorrhea alveolaris are not in reality pyorrhea alveolaris. There is a mistake in the diagnosis in many instances. I believe that in the near future there will be brought to the attention of the profession a cure for this disease, but I do not believe that we can absolutely cure it by the use of emetin hydrochlorid or with any other medicinal agent. We want facts and not theory in regard to these cases. In many cases we think we have brought about a cure, but we have been disappointed later. I believe and can prove by the work I have done, that I have killed the amoeba. I do not believe that amoeba always exist in cases of pyorrhea for the reason that when I kill the amoeba I find that pus still continues, showing that the amoeba is not the only cause of the disease. I have found in many of my cases the spirochetes and the bacillus fusiformis in conjunction with the

amoeba, organisms capable of producing pus. The treponema is capable of penetrating the tissues of the body. That we have present treponema in the gum tissues I have conclusively shown by numerous slides. I have killed the bacillus fusiformis by means of neo-salvarsan, and still the pus has not disappeared. This again shows that the amoeba is not the only cause of pyorrhea alveolaris, an opinion which is shared in by the Chairman of this section, Dr. Marshall. He believes we may have many kinds of pyorrhea alveolaris. I do not believe emetin is a specific for amoeba pyorrhea. Dr. Van Zant has found that angina ganrenosa may be caused by the bacillus fusiformis and by the spirochetes. This is the second variety in which pus is present. Furthermore, we know from experience that the diplococcus may be present in a pericemental abscess for many years and may be the only bacteria that causes it.

Finally, I want to say, a study of the bacteriology of pyorrhea alveolaris is the only way by which we will be enabled to get at the true cause of the disease, and some day a reliable or specific treatment for the cure of this disease will be brought to the attention of the profession. (Applause.)

Dr. E. G. Mitchell, Oklahoma City, Okla.

The thought has occurred to me that in our experiments wherein there seems to be such a diversity of thought and such a difference of opinion and such a variety of results, we can usually account for this from the fact that there are very few pyorrhea men who insist upon absolute cleanliness on the part of the patient. One may be perfect in his instrumentation, and yet, because of his lack of insistence upon absolute cleanliness, he cannot get the same results that another man does who may not be quite so thorough. It seems to me, if we could lay more stress upon the patient's part we could obtain more definite results with the various methods that we use. One man uses the preparation we are discussing and gets a certain result; another man uses it in a different way and he gets a certain result; he may apply the treatment in the same way, but the results may be very different. A good deal of that is due to the fact that we are not all of us as broad or as particular as we should be in demanding and insisting that our patients do their full duty. I think if we will do that, our results will be more uniform.

Dr. John O. Engs, Oakland, Cal.

I would like to speak upon the influences that may have a bearing upon pyorrhea. One point that has not been touched upon by any of the gentlemen is the question of nutrition. It has been referred to, but sufficient emphasis has not been given to this phase of the subject.

Advantages of Correct Food Habits.

Several years ago a movement was begun by Dr. Wiley, in Washington, to provide the people of the United States with pure food. This movement had some influence for awhile; then Dr. Wiley was replaced in his position, and much of his work was discouraged. However, he took it up and continued this work through the *Good Housekeeping* magazine. He believes with many of us if the body is properly nourished the diseases which are present around us at all times are not liable to attack us. I think this myself and my belief is substantiated because I have seen it in my own practice. I have seen patients with very loose teeth, teeth so loose that if I did not have faith in their being tightened up I would have considered them useless to do anything with. This was five years ago. It takes a long time by any method of treatment to cure such conditions, but those teeth today are perfectly firm. The patient, who is a lady, was not well physically in a general way. She was under the care of a specialist in San Francisco. At one time she was placed on a diet. She was very thin, but she gained a great deal in flesh on a milk diet. I scaled her teeth and used a local astringent wash and had great success with the iodin treatment applied to the gums. This is Dr. Talbot's method, but it does not seem to me to meet with very much favor. A successful result was brought about in this case through what I consider a great improvement in the tone of her whole system. From my own observation I should say that anything that does not include a toning up of the whole system will not enable us to bring about a permanent cure of pyorrhea alveolaris.

The Legal Status of Dentists.

I would like to make a few remarks concerning a hobby of mine, and it has been suggested by reference to the intravenous injection of emetin. It has always seemed to me that we, as dentists, are treading on dangerous ground when we undertake anything of that sort. About a year ago, in Oakland, a gentleman read a very interesting paper on "Autogenous Vaccines to Raise the Opsonic Index in a Case of Pyorrhea." I asked him what might happen if there should be an unpleasant result after the injection. "Oh! Well! That is all right," he said "call in a physician to sign the death warrant." Now, that is not professional in my judgment. We have a sort of standing in the eyes of the public, but we have not the standing which I think dentists should have in view of the educational opportunities and advantages which dentists enjoy today. I think that the treatment of pyorrhea alveolaris belongs to us, as dentists, and not to members of the medical profession; but if we begin a part of the work and shift the responsibility and encourage the medical

man to do the things we ought to do ourselves, we can never hope to appear in the eyes of the public as we should. One of the most important things for the dental profession to do today is to see that in their several states, legislation is enacted to establish the standing of dentists legally. It may surprise some of you when I tell you that dentists in California have no legal standing whatever.

Dr. T. Sidney Smith, San Francisco.

I wish to say a few words in the discussion of Dr. Markey's paper. There are two points I want to bring out. In the first place, he gave the impression that pyorrhea is not found in early life. Personally, I have found it very advanced at ten years of age. No one in all the world believes more in observing the laws of health and building up the body for the purpose of resistance to the invasion of pathogenic organisms than I do. Those who emphasize the other side of this subject sometimes speak too little of this, but I wish to refer to this one side. He emphasized the danger of toxins and of pus in the body rather than the specific organisms passing through the blood stream. He spoke of a blood count and said we should always take it. I believe we should. I do not always practice it; it has not always been convenient to do so, but I believe we should.

I am going to speak now of the action which takes place in these pockets. There are many different organisms, including the endamoeba which live symbiotically together. These organisms travel through the blood stream and reach all tissues of the body, and some of the organisms may attack one particular tissue. For instance, the tissue may be invaded by the streptococcus viridans, which may attack a joint or joints, and produce what he referred to as coming from uric acid. That organism may not only produce this condition, but the effect of that disease would be the accumulation of a deposit. Another strain may travel through the blood stream and become a hemolytic strain, although originally the same organism. Mutation has taken place, and the same organism may cause anemia.

Case History.

I will relate one case briefly. A young lady, twenty years of age came to me last December. She had been sick for over four years. She had suffered from a bad condition of the heart and was extremely anemic. She had been treated for a year or two by one of the best specialists, without any improvement whatever. The heart was getting worse all the time. Her blood was in a bad condition; the blood count had reached the limit for a person who could be still up and

around. I was unable to find any pulpless teeth; I did find a pyorrheal condition, and I diagnosed the case at once and did not hesitate to say that these organisms were gaining access to the blood stream from the septic foci of the mouth. I started on the eleventh day of December to treat the gums of this patient, and did not finish the treatment until the 30th, taking about twenty days to cure the disease of the gums owing to the condition of her health. At the end of that time she could run up and down stairs like any other member of the family. Today she is one of the rosiest and healthiest girls you can find. That case simply shows that the streptococcus viridans gained access to the heart. The streptococcus hemolyticus may gain access to the blood stream and cause an arthritis. We should not attach a wrong relation to these organisms; they are intimately related to conditions we may find in the mouth and elsewhere in the body, but let us give them their correct association and interpretation.

The Chairman.

I will ask Dr. Markey to close the discussion on his paper.

Dr. C. E. Markey, Pasadena, Cal.

In presenting my paper, I took into consideration the fact that we are, in reality, dealing with all tissues of the body. Personally I believe that disease, in any part of the body, cannot exist, unless it is associated with some derangement or involving a lowered constitutional resistance. I believe that the question of nutrition, resistance, immunity and susceptibility are factors of utmost importance for the dentist, as well as the medical profession. It has not been my pleasure to see a case of pyorrhea, in a child of the age of ten or twelve, as referred to by Dr. Smith, though I do not say it is not possible, but my experience has not shown the existence of genuine pyorrhea, at such an early age, rather would I consider it scurvy or salivation.

Dr. Robertson referred to a case of nephritis developing in an alcoholic. There is no question but that alcohol will lower the resistance of the tissues and in so doing it predisposes to disease whether it is a pyorrhea or some acute inflammation, or any condition of this class.

I have used emetin hydrochlorid and while it may have assisted, in some cases, yet at some time I have had recurrence of pus, even in some cases where I used it in connection with thorough instrumentation, and again have seldom noticed any beneficial effects when used "without" thorough instrumentation. In the study of genuine pyorrhea we should study the disease from every angle and not think of it as purely a local disease, because I believe it as much a constitutional disease as a local one.

Dr. H. I. Horner, Richmond, Cal.

Dr. Smith discusses the point of vital reattachment and the regeneration of the cementum. I would like to say just a word on the regeneration of the cementum. I think I stated in my paper that the cementum not only lacks blood but lymphatics, the materials or mechanism for repair of this tissue. I want to emphasize that point again, that we have no blood, no lymphatics in the cementum, and it is due to the blood and to the lymphatics that we get repair of tissue. Unless we can get vitality or repair of the cementum, we cannot expect to get vital reattachment. Dr. Smith agrees with me on that point. He, I think, will tell you that he gets vitality in this repair from the pulp of the tooth, but under the microscope the cementum shows no canals, no method at all of taking blood and taking the lymph stream through the cementum.

The general practitioner of dentistry has to face the condition of pus discharging from the gums. Formerly when a patient came into my office with pyorrhea, with quanties of tartar on the teeth and a great deal of pus discharging from the gums, I used to dislike to see that patient, and often wished he went across the street to Dr. Brown or Dr. Smith.

I started to use emetin, and while I have obtained results with surgical treatment, I do not possess the skill to get regeneration nor to get the pockets cleaned out sufficiently well to get rid of the pus discharge. I found it a long tedious job, and after I got through, in three or four weeks or a month the patient would return with the same amount of pus as he had in the first place. I started to use emetin and the pus discharges stopped, and I have seen my patients once a month for the purpose of determining whether there is or is not discharge of pus. I have been unable to see any pus in most cases.

Of all the cases I have treated, I have had recurrence of pus in only three. In these three cases, after the surgical treatment, after carrying them through treatment a second time for a period of six to seven days, using intramuscular injections of emetin each day,* the pus condition has cleared up again, and I have had no further recurrence in these cases. I might mention other clinical cases but they are all along the same line and it is mainly to the general practitioner I wish to direct my remarks. I wish to say to you that you

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*I am now administering emetin hydrochlorid in one-half grain doses intravenously, for six *consecutive* days, instead of the intramuscular injection I was using when I wrote this paper. The only contra-indication I have found is pregnancy—Harold I. Horner, (June, 1918).

have something that will aid you. I do not think the endamoeba buccalis is the specific organism of pyorrhea. In saying that I am not talking as a specialist, but as one who is engaged in daily practice and treating every phase of dentistry. We have arthritis, endocarditis and any number of diseases as the result of a general systemic infection from pyorrhea, and if we can eliminate the pus from these pockets and get rid of the organisms entering the blood stream, we will have done a great service for these patients. I would urge you not to drop the use of emetin. Try it conscientiously.

Dr. Frederick Hecker, Kansas City, Mo.

The question of amoeba in tissue is a factor which has occupied the attention of a great many men. About three weeks ago I received a letter from J. Allen Smith, of the University of Pennsylvania School of Medicine, asking me whether I thought these two large cells, which I showed you on the screen, were amoeba. I carefully examined the slide and wrote back, "No." I have stained the slides since then with various stains which are supposed to be differential stains for amoeba. I bring this point out to show you that it requires a good deal of technical knowledge and a good deal of patience. In the first step, when you have a decalcified specimen, you stain that specimen with hematoxylin. The specimens must be collected fresh and fixed in a solution composed of corrosive sublimate and ninety-five to one hundred per cent. alcohol. That fixes it in some way so that the amoebae are supposed to come out when you stain them with the hematoxylin later. Unfortunately, I did not find any specimens stained in that manner. I then took oxalic acid and some other agents and I was again disappointed. I do not believe from what I have observed that the amoebae are the responsible etiological factors capable of producing pyorrhea alveolaris, although Bass and Johns believe they are the etiological factors responsible for the disease. I base my statements upon certain observations which must be brought out by analogy. In the first place, if we are going to do this thing scientifically, we must offer some proof for it, and not theory, as was pointed out by my friend, Dr. Weiss, of Havana, Cuba. Many practitioners of dentistry get up and say a great deal and show very little proof in substantiation of their statements. The amoeba, in order to be pathogenic, must contain some products which every amoeba must contain, namely chromidial bodies. The endamoeba histolytica contains chromidial bodies. These bodies have not been definitely located in the endamoeba buccalis. Bass and Johns believe that the endamoeba buccalis is found in the tissues around the roots of the teeth. Does that answer the question?

Dr. Seager. Yes, sir.

Dr. Hecker. (Resuming.) To take up the discussion of some of the other papers, I will say that I have tried experiments with emetin, and I have found that after a patient has been given seven and a half grains of emetin hyrodchlorid intravenously and the crystals of ipecac, I have found a number of amoeba in the pus collected from a large number of pockets. Furthermore, I do not believe that any man is justified in saying that because he is unable to see any pus with his eye that it is not present. It does not matter whether you have one drop of pus or a bucket full, pus is pus, and, even though you do not see it coming out by the shovelful when you massage the gums, it still means pyorrhea. (Applause.)

As to the gentleman who read the first paper, he has started a beautiful work. If many of you will follow his example, namely, using tough foods, you would have great luck. I disagree with some practitioners in that I do not believe in the constant instrumentation which is pursued by many. I believe the future treatment of pyorrhea will depend upon certain systemic treatment to bring about a certain raising of the vital forces upon which the body depends, and then of counteracting those factors that are capable of producing the disease after they gain entrance to the body, whether it is the teeth or the heart that is involved. Again, I believe the future local treatment of pyorrhea will depend upon some ingenious method devised by some ingenious fellow of introducing into these pockets a certain acid which will tear off and dissolve the inorganic deposits upon the roots of the teeth and yet not destroy the cementum or peridental membrane.

Adjourned.

September Eighth.

The section met at nine-thirty A. M., and was called to order by the Chairman.

Dr. M. H. Cazier, Chicago, Illinois, read a paper on "The Conservation of the Alveolar Process, with Special Reference to Pyorrhea Alveolaris, Oral Sepsis and the General Health."*

Discussion of Dr. Cazier's Paper.

Dr. L. L. Davis, Chicago, Ill.

Mr. Chairman and Members of the Congress: In opening the discussion on this paper, I ask your pardon if I digress and touch upon the subject matter of several of the essayists of this meeting.

During the last ten days it has been your and my privilege to listen to an exposition of the most advanced thought on the subject of pyorrhea alveolaris and its treatment, and it is with pleasure I have witnessed the interest shown by general practitioners in this subject. Only a very short time ago papers on this disease received but very little attention, except from those making it their special study and practice. Now it is the question of the hour. Those of you who have heard the papers and discussions in Section Eight during this Congress cannot but be impressed by the strong support of each theory on the etiology or the treatment obtained, and it only shows how much serious consideration the different phases of the subject are receiving. One side says the endamoeba causes all the trouble. The other, that it is a bacterial infection. One sees the amoeba in every case, the other fails to find it at all. One gets marked results from emetin, while the other sees only serious injurious systematic effects. Those who try to sit on both stools at the same time, by adopting some modification of either theory must fall to the ground. Out of all this contention, certain facts stand out prominently.

Were I to put in print my views on the situation, I could ask for no more complete elucidation of them than was expressed in the paper by Dr. T. Sidney Smith of this city. The masterly manner in which his thoughts were placed before you deserve the highest commendation, and his method of treatment, with the slight addition of Dr. Cazier's application of the Bier hyperemia method, deserves universal adoption. For you

*See Vol. II. Page 278.

may rest assured, no matter how scientists may differ as to cause, only such treatment as advocated by Dr. Smith will bring about the absolutely necessary results.

We may use emetin in any or in all the ways suggested, but without proper surgical interference we shall never effect a cure, and I wish to add, for the benefit of those who heard the suggestion of someone, "that on account of lack of time, I could not give the patient the proper care by removal of deposits, and used injections of emetin as a prophylactic," that it were better to remove the affected teeth and insert a denture than to continue the present pus producing foci, the serious results of which you must by this time be so well acquainted with.

Now, regarding the paper under discussion, I consider this essay one of the most valuable contributions on this subject (pyorrhea alveolaris) at this meeting, for whether the disease is produced by the amoeba or by bacteria, or the amoeba in the deep pockets tear down the alveolar process, or necrotic conditions from other causes bring about the loss of tissue, you must cleanse, you must remove deposits, and to secure the best results you must establish drainage and induce hyperemia.

The essayist has been very modest in giving so brief a mention of what I know to be the best suggestion ever offered to sufferers from so-called pyorrhea alveolaris, namely, an adaptation of the Bier hyperemia theory to conditions of the mouth.

I differ with the essayist in several minor details, but shall only speak of that part of the paper advocating the use of acid tartar solvents, as I think even they can be dispensed with. I am positive that in the method outlined by Dr. Smith, with the assistance of the patient in a thorough cleansing and care of the teeth, the cupping or vacuum method of pus drainage, and, at the same time, inducing a flow of healthy blood into the diseased parts suggested by the essayist's application of Bier's theory, we have something that offers greater permanence than anything yet demonstrated. I have had the opportunity of watching cases under this method of treatment for nearly two years, and have yet to be converted to the application of drugs to remedy evils, when we have so simple a method of assisting nature to restore the parts to health, and at the same time compel the patients to do their share of the work undertaken.

Dr. H. Page Bailey, Los Angeles, California, read a paper entitled, "Studies of Endamoeba Buccalis,"* which was illustrated by moving picture films and lantern.

*See Vol. II. Page 285.

Discussion of Dr. Bailey's Paper.

Dr. C. Sidney Smith, San Francisco.

I wish to congratulate Dr. Bailey upon the excellent work he is doing. It is the kind of work that will give us eventually more definite knowledge of the organisms involved in these lesions, whether they are of etiological character or simply incidental invaders. I wish I had had the opportunity of seeing this film run through two or three times, because one is at a disadvantage in discussing it. However, I can speak of some things pointed out in connection with it.

Dr. Bailey brought out the thought that these specimens were secured by several methods. I would think so from seeing the pictures that were projected on the screen. If you noticed, the first endamoebas that appeared on the screen were much longer than those that appeared later. Their action was more definite in one direction; they were also swifter. It is my opinion at the present time that the endamoeba kartulisi is what we believe to be the endamoeba buccalis. The former organism has more action on the slide as compared with the organism which we have been calling the endamoeba histolytica; that is to say, it moves faster and more definitely in one direction. At the present time, I believe we are justified, if there is any pathogenic action in this, in associating a more destructive action with the more rapid motile specimens. Dr. Schaudinn in his excellent description gave a classification of endamoeba histolytica. Most of us have worked on pathological specimens of them and the men now working in their laboratories find the endamoeba buccalis, but that does not prove that the endamoeba histolytica does not exist because a number of workers do not find it.

I tried to make a classification of the different endamoebas and gave it up. I find at the present time our knowledge is so limited and the most expert men have differed so greatly in their descriptions, that it is not scientifically possible to formulate an exact classification. We are only beginning to study them. Some of the main points we seem to agree on would be their size. The endamoeba buccalis was beautifully shown on the screen. The majority of investigators believe them to be from five, usually about six microns, with a minimum of five microns, the maximum running to thirty-three, the majority about thirty.

As to the endamoeba histolytica, Dr. Kofert accounts for the difference in size and the difference in the ectoplasm as being due to the character of the surroundings, the endamoeba buccalis in a neutral medium and the endamoeba histolytica living in the alkaline contents of the intestines. In the contents of the intestinal tract we have an alkaline medium for them to live in, and it is known that we have two extreme differences, the extreme refractory character of the ectoplasm of the endamoeba histolytica.

and a lack of the alkaline character of the endamoeba coli. That is not quite definite.

As to their motility, they can be speeded up by a warming or lessening or cooling, and when you reach a point below the normal body warmth, action lessens and stops entirely. If you go above that, again it stops and apparently kills them, so they can live only in a summer range of temperature. However, living endamoebas can live in a zero temperature in the encysted form and come out alive and grow. That is one feature which seems to differentiate them. Another is the contractile form of the vacuoles.

Regarding the length of time we have been able to grow them, until we can grow them and absolutely know their life cycle, we shall not progress much farther than we have been able to at the present time. So far, Dr. Smith and Dr. Barrett, of Philadelphia, have grown them for about a day, the longest period of time. A few of us are not able to grow them more than an hour. I would advise you all to study them under the microscope and in every shape and form, in order that we may know if they have any relation to the disease which we know as pyorrhea aveolaris.

Dr. M. M. Bettman, Portland, Ore. Yesterday one of the essayists told us he had never been able to find amoeba. I want to ask Dr. Bailey if he has found them in every case in the mouth.

Dr. Bailey. Do you mean in pathological conditions?

Dr. Bettman. Yes, sir.

Dr. Bailey. I have not found the amoeba in every case I have examined. There are some cases where it seems impossible to find them, although there is much bacterial infection and pus present.

Dr. J. U. Werthern, San Francisco, Cal. I want to say, that in the etiology of pyorrhea alveolaris we are far from a unanimity of opinion, whether its source is amoebic, bacterial or systemic. Whether we have to deal with an amoebic process in the deep pockets or a necrotic process, it seems to me with reference to the treatment of this disease that pyorrhea alveolaris has the same status in dentistry as lobar pneumonia holds in medicine, for lobar pneumonia has as many treatments as the digits upon the hands and feet. What strikes me as being the most logical treatment is the one outlined by Dr. Sidney Smith; also a logical treatment is the one outlined by Dr. M. H. Cazier. I think if some genius will effect a combination of Dr. Smith's treatment with the treatment outlined

by Dr. Cazier, we may arrive at a logical and scientific eradication of pyorrhea alveolaris.

Dr. M. H. Cazier, Chicago, Ill.

Beginning with the remark made by the gentleman who has just taken his seat, and stated his position in the matter, and thanking him for the compliment of the suggestion that I have had the honor in making a valuable contribution, and further thanking him for the honor of linking my name with that of Dr. Smith, permit me to say there is absolutely no difficulty of uniting the method of restoring the vitality of these tissues with the method suggested by Dr. Smith. The difference is this, mainly, that Dr. Smith has pointed out what former pathologists have assumed to be impossible, a reunion between the soft tissues and the teeth. He has shown you that under the very careful operative procedures that he is capable of carrying out, such things occur. Possibly other men may develop the skill of Dr. Smith by his teachings and observations, and there may be a few men developed in this country and abroad who are capable of doing it. Perhaps one case of pyorrhea alveolaris out of every million then might be cured. I am adding to that the opportunity of every dentist to produce the same results and to make it so that there will not be only occasional recovery, but by reuniting all these tissues by building up the vital energy of the system, nature's method of healing wounds, we will make it universal.

Regarding the suggestion I made to the general profession about the use of iodin, I will ask you to think of that, because iodin is very valuable as a germicide. If we will so support the energies that are residing in the tissues themselves, the needed artificial germicides will be very few in number, and then they should be selected with a view of not having such an agency or action as will destroy the tissue cells or prevent their elaboration. Then seek to get rid of the rats without burning the house. (Applause.)

Dr. John Robertson, Napa, Cal.

I would like to say a few words on the prognosis and treatment of pyorrhea so-called, as I have seen it. The prognosis will depend, in my opinion, upon the cause. If you can remove the cause it is an easy matter to cure the pyorrhea. If the cause is strictly local then the prognosis is good, but if the etiology depends upon some systemic factor, you are in a serious dilemma. Much depends upon whether you can ascertain the cause and remove it. If the cause is due to some deep-seated organic trouble, you can safely say that cure will not be easy. So I would advise you, my friends, in the future, when you treat a case of pyorrhea that does not respond after careful and

conscientious treatment locally and by surgical methods and the use of proper germicides and antiseptics, immediately to consult with a well-informed, conscientious practitioner of internal medicine, and go into the case with him in a thorough, scientific manner. You will probably find the patient has some deep-seated or organic impairment or organic trouble.

Dr. M. Weiss, Havana, Cuba.

I want to emphasize the point that in addition to the use of emetin hydrochlorid, or any other medicinal agent, surgical treatment is necessary in dealing with cases of pyorrhea alveolaris. There is not only local infection in these cases, but systemic disturbance, so that it is very essential to build up the vital energies of the body. I have pointed out that syphilitic infection may be a predisposing cause of pyorrhea alveolaris. Furthermore, we may find organisms other than the amoeba in cases of pyorrhea alveolaris. I have already pointed out to you that I have been able to kill the amoeba, and yet pus has not disappeared from the pockets. I have some doubt as to whether emetin is a specific for the treatment of pyorrhea, and although such a statement has been published in a book on the subject, I cannot accept some of the conclusions of the author. The amoeba may be a contributing cause, but it is not the only etiological factor in the production of pyorrhea. In studying pyorrhea we must bring to our aid the use of the microscope, study the amoeba and other organisms carefully, and in addition to the use of emetin or other medicinal agents resort to instrumentation.

Dr. H. E. Friesell, Pittsburg, Pa.

We have had for three days symposia upon pyorrhea. We have had many statements made and many theories advanced, pro and con, in regard to the cause and prognosis and possible cure or the impossibility of cure of pyorrhea. There are one or two facts that I desire to append.

I agree very heartily with many things mentioned this morning by Dr. Cazier. I believe he has some excellent ideas in his paper; that he is right in many statements. I disagree just as positively with many other statements made in his paper, and believe he is just as wrong in certain directions as he is right in others. I want to leave this idea with those of you who are interested in finding out what pyorrhea is, and not in proving that any particular theory you have in mind is the cause of pyorrhea. I believe that ninety-five per cent. of our cases of pyorrhea are due primarily to traumatism of the gingival border of the peridental membrane, followed by an infection of that tissue, becoming rapid in its progress or slow in its progress in accordance with the resistance

of the vitality of the individual patient; and I also believe that the larger proportion of these ninety-five per cent. of our pyorrhea cases can be prevented by proper dental procedures, and in their earliest stages. If the vitality of the patient and his resisting power are favorable, a large proportion can be cured in the early stages because pyorrhea, as we see it and recognize it, is pyorrhea in the last stages and not pyorrhea in its incipiency. Any one who has seen cases of lead poisoning, mercurial poisoning, bismuth poisoning or scorbutus, or who has seen marked cases of pyorrhea following certain general systemic conditions, must also recognize that the possibility of a systemic background in pyorrhea is very great. From practical observation, I think, however, that five per cent. is a sufficiently large margin to leave for the systemic causes.

Alveolar Process Not Transitory.

The statement that Dr. Mayo makes in regard to the transitory nature of the alveolar process is one that has been made frequently by members of the medical and dental professions, and I think an incorrect interpretation of conditions is being made in that case. The alveolar process is no more transitory than is life itself. If normal health is maintained in the oral cavity, the alveolar process will remain healthy and support the teeth until old age, bringing about the ordinary senile changes we see in tooth tissues, also permitting that condition to occur in the alveolar process. But we must recognize that the alveolar process is tissue that is built up around the roots of the teeth to support the teeth and it is dependent upon the teeth, and not the teeth upon the alveolar process, and when we recognize that fact we will have a little different interpretation of the life of the alveolar process and its possible transitory nature.

One of the essayists has said that these things have been taught in dentistry and dentists have not been awake to these conditions. Dentistry is a very young profession. It is seventy-five years old this year, I believe, and there are not many generations where dentistry seems to have overlooked important pathological conditions. The principal trouble has not been so much with dentistry as with the supercilious position of the medical profession, because dentists for the past generation have been trying to convince their medical brothers that there is something in the mouth that has a very definite and important effect upon the health of the individual, and it is only very recently that we have been able to get a hearing. Even today it is only in the minds of the leading medical men that we find a favorable reception of things that we in dentistry know to be true.

I want to compliment Dr. Bailey upon the manner in which he has presented his subject. He has attempted to prove nothing. He has no

pet theory to advance. He has made a study of conditions as they are and shows them to you for you to place your own interpretation upon them just as he will place his interpretation upon them. That is the proper scientific attitude. That is the attitude that will get us somewhere. We are going in the right direction, but when we start out with the idea that because we see these endamebae we must rush into print and prove to everybody that we have found something which may be the cause of pyorrhea alveolaris, the experience of the last year or so in pyorrhea is a pretty good answer to what such a procedure will bring upon us. When we have formed a theory of our own in regard to the interpretation of certain observed facts, it is a good thing to bring to bear upon that pet theory every possible objection that can be made, and when everything has been carefully considered we will then be in a position to say that this is the correct view. The admirable attitude of Dr. Bailey in this matter is one that I wish to compliment him on very sincerely. (Applause.)

Dr. Bailey. (Closing) I do not wish to take up further the time of the section in discussing what I have brought before you. I have enjoyed every minute I have put in with the microscope, as well as with the moving-picture camera, which portrays those things that I saw through the microscope. I hope it will inspire some of you to doing similar work which is absolutely necessary for scientific purposes.

The section then adjourned *sine die.*

The Chairman. I want to thank you in my own behalf and those of my confreres, the officers of this Section, for the interest you have taken in the programs that have been prepared for you. I feel very confident you have learned something since you have been here, and you will take things away that will be of benefit to you. Every man who has listened to papers and discussions before this Section has been benefited. I bid you farewell until we meet again. [Applause.]

Dr. L. L. Davis, Chicago. I move that a rising vote of thanks be extended to the Chairman, Dr. John S. Marshall, for the able manner in which he has presided over the deliberations of this Section.

Motion seconded and carried.

Adjourned.

Section IX.

Prosthesis.

Section Nine.
Prosthesis.

Chairman: Dr. Ellison Hillyer, Brooklyn, New York.
Vice-Chairman: Dr. F. W. Hergert, Seattle, Washington.
Secretary: Dr. C. O. Edwards, Oakland, California.

September Second.

This section met Thursday, September 2, 1915, at 9:30 A. M. and was called to order by the Chairman.

In the absence of the Vice-President, Dr. Edwards, the Secretary, took the Chair and introduced the Chairman, who delivered his address.*

Dr. Calvin S. Case, Chicago, Illinois, read a paper entitled, "Mechanical Correction of Cleft Palate,"** which was illustrated by numerous lantern slides.

Discussion of Dr. Case's Paper.

Dr. R. Ottolengui, New York City.

Mr. Chairman: With reference to Dr. Case's paper, I am familiar with the literature on the subject, and I want to say without any reservation that this paper when published will be the finest, most comprehensive, and the very latest and best contribution we will have had up to that time. Having said that, I want to discuss a little some of the problems connected with this subject.

Dr. Kingsley thought he had solved the problem of the treatment of cleft palate, because he treated many hundreds of cases, and the proportion of his successes was larger than the proportion of successes by surgeons. I think it is very natural, even with my own little experience, to believe that the methods I employ at the present time are successful, both because my patients and myself are satisfied with the results. It is natural for Dr. Baker to rely upon his hinged bulb. It is natural for Dr. Vathek Mitchell to think that his apparatus with its artificial vomer is the *sine qua non,* because he has certainly shown patients in whom he has achieved remarkable results. It is quite fair for Dr. Case to believe that

*See Vol. II. Page 325.
**See Vol. II, Page 327.

he has solved the problem, because he not only gets the results of Kingsley, Baker, Mitchell and myself, but he does it in the absence of a retaining or carrying plate, which is a good deal of a menace to the teeth, so that in a general way Dr. Case has the best apparatus, because he gets just as good results, and if proportions are considered, better results than anyone, without any danger to the natural teeth. These five methods of treatment are so totally different as to make it quite remarkable, to make us question after all whether anybody has really solved all the necessities of the lesion.

Kingsley's Method.

For example, let us start with Dr. Kingsley. Kingsley made a soft velum which tapered off toward the posterior walls of the palate to a very fine edge, and was so constructed that the rise and fall of the pharyngeal wall would curl up the posterior border of the palate and make a perfect contact, so as to separate the oral and nasal cavities. I worked alongside of and with Dr. Kingsley for some fifteen years, and really believed I had mastered his technique, but let me admit to you, that after I got into separate practice and undertook to make or to treat cases by the Kingsley method, without having Kingsley present to direct it, I quickly discovered that Kingsley could do some things I was not able to do, and of the six or eight cases which I treated alone, I think there is only one in which the success was comparable with Kingsley. Dr. Kingsley made his appliance from models in which there was no reproduction of the posterior palatal wall, and he determined with his eye the length and form which the extreme end of this palate should take. I found myself unable to do that with accuracy. I either had my tail piece so long that it acted as an irritant, or it was so short that it did not sufficiently close off the palate, or it was so wide that the closure of the palatal muscle would eject it, or else there was some other misadaptation.

I may not fully comprehend Dr. Case's appliance, and I hope he will answer this in closing the discussion, but it seems to me that this is just exactly the fault with this appliance of Dr. Case's; that is to say, the desired length of it seems to be left to the determination and the skill of the operator. Dr. Case is very skilful; he succeeds every time, but the question arises whether that is an adequate method; whether it will serve after the whole Case family have died, and future practitioners are left to determine by guess the length of the velum-obturator so that it will make a proper contact.

Dr. Case.

Permit me to ask a question. Did Dr. Kingsley allow the posterior border of the velum to touch continuously the pharyngeal wall?

Dr. Ottolengui. It was not supposed to touch the pharyngeal wall at all. In a relaxed state it would not touch, but would sufficiently close, for contact with the pharyngeal wall when it rises in the effort to close off the nasal passages. If too long, and therefore in constant contact, in a short time it would cause an ulceration. If too short there would be the escape of sound.

Dr. Ottolengui's Method. To meet that difficulty, I conceived the idea of forming a model which would present all the anterior portion of the mouth, as it is when all parts are relaxed, but with the pharyngeal wall represented as it is when it is closed. If you could look over a number of models made in this manner, you would see how difficult it is to guess exactly the form of the aperture resulting from the shortness or absence of the palate, and the closure of the palatal muscles together with more or less coming forward of the posterior pharyngeal wall. It almost invariably occurs that the muscle on one side is more active than the muscle on the other, resulting in an "asymmetrical hole," if I may use such an expression. With such a model, I have been making what I suppose you might call a velum obturator, because it is made in the general form of the Kingsley hard rubber obturator, but it is made of soft rubber. The point is you get a wide contact when the throat is closed, yet when the parts are relaxed the apparatus does not touch the tissues at all. I have had good success with that method, and if I had never seen any other man's method, I would think I had solved the problem.

Dr. Mitchell's Method. Then we have Dr. Mitchell, who makes an appliance somewhat after the plan of the Baker apparatus with a hinge to it, but Dr. Mitchell has conceived the idea that he can control the nasal resonance by restoring some semblance of the vomer, and so he builds up an artificial vomer on the top of his obturator.

How did Dr. Mitchell conceive the idea that this is essential? He took patients who had had other appliances and had not learned to speak without nasal resonance, made appliances for them and corrected the nasal resonance. Therefore he believes that he has done it with that artificial vomer. Look at one of Dr. Case's appliances! How totally unlike Dr. Mitchell's! Yet he does the same thing without any artificial vomer. I want to say that Kingsley, Case and myself have corrected hundreds of cases of nasal resonance without attempting to reproduce a nasal septum. Hence I think it is unnecessary. On the other hand, there are cases where all of the nasal bones are present and normal and yet the patients speak with a great deal of nasal resonance, simply because the soft palate is cleft. I have seen two cases where there was absolutely no cleft in the

palate, no harelip; simply a normal palate apparently, which, however, was too short, and each patient speaks so that he is almost unintelligible. Have you seen a case like that, Dr. Case?

Dr. Case. I do not think I have.

Dr. Ottolengui. Dr. Case spoke of instances where the surgeons mutilated patients; where the surgeons have left patients in such a condition that not even a man like Dr. Case can do for them what he could have done if the surgeons had not touched them.

I want to say a word in closing about the surgical aspect of this, and I am very glad Dr. Brophy is here. We are going to miss Dr. Brophy when he leaves us, because there are very few men who have the ability and conscience to operate on these patients successfully. I dislike to say this, but my experience, and I think the experience of Dr. Case will show that many surgeons are without a conscience which they should have. They operate, and if they fail they feel it is the fault of circumstances, and not of themselves. A patient has a surgical operation done on the palate which fails, and that patient is often obliged to go to Dr. Case, or to some other specialist for an artificial substitute, or artificial help. I wish in such a case that the bill could be sent to the surgeon who did the operation. If this were done it would make incompetent surgeons hesitate to do these operations. We know that Dr. Brophy has had marvelous successes in operating on infants, and in closing the two sides of the upper jaw, but he has followers who attempt that operation, and either through faulty technique or lack of skill they do not succeed so well.

I have coming to me this September almost a duplicate of the case that Doctor Case showed on the screen; a child who was operated on in infancy by one of Dr. Brophy's imitators. She has an upper lip so small and inelastic that it was impossible to get a tray into her mouth for an impression, until the flanges had been cut away. She has an upper jaw so narrow, that every tooth in the upper arch bites lingually to every tooth in the lower arch, and she has such a recession of the middle third of the face as some of you have seen in pictures. In the throat she has a short palate which is nearly half an inch thick, made up of cicatricial tissue. It seems to me, the correction of that case will prove to be long work. She is only seven or eight years of age and the bicuspids coming in are jumbled and twisted. The arch must be widened to give her masticating surface and the incisors must be supplied by some sort of bridgework, and you know what it means to put bridgework in a mouth so young as that. I believe that mass of cicatricial tissue should be cut away and a surgical cleft palate formed before any success will be obtained for that child. If surgeons could see some of their failures that

come to the dentists, they would hesitate, and make more careful selections of the cases on which they operate.

What I admire so much about this paper is that it has covered practically every aspect of the subject. I will conclude as I began by saying that I believe up to date this paper, which is a résumé of Dr. Case's last fifteen years' experience and work, gives us the last word and the best word on the treatment of cleft palate. (Applause.)

Dr. Truman W. Brophy, Chicago, Ill.

Mr. President and Gentlemen: I am somewhat familiar with the work of Dr. Case, and Dr. Case very kindly gave me his paper which I read and appreciated.

Always, in the consideration of the subject of any congenital or acquired deformity, the first question arises in the mind of the man who sees it and who desires to treat it, what is the condition? In my writings I have divided cleft palate into fifteen different classes or types; harelip into thirteen. The first question which naturally appeals to one is this: "What is the proper thing to do? Is it possible to remove the deformity?" If it is possible by surgical means to overcome the deformity so as to restore normal speech, so as to make it possible for this person to go through the world as other people do who are not defective, then it is the duty of the surgeon to operate. If the case is inoperable, then it is the duty of the surgeon to say to the patient that his only course is to procure an obturator or artificial velum. That is the point on which the whole thing hinges. I do not blame men for declaring, as the last speaker did, that surgery has too frequently been a failure. I know it has been too frequently a failure. I know that the methods pursued have not been with a view to correcting all of the defects. I want to say at the outset, that of all artificial vela or of velum-obturators that I have ever seen in operation, the one that has been made by Dr. Case, and which was described by him in his paper, seems to me to be the very climax of mechanical success. But I would not suggest to a patient to have an artificial palate made if I felt reasonably certain that by an operation the defect could be removed forever and that patient put into condition to go through life without being obliged to make use of an artificial appliance. I say this with all kindness, not in a critical spirit against artificial vela. Artificial vela are absolutely necessary. They are indispensable to some people, and yet I am inclined to the belief that unions that have been based upon very defective surgery; and bad results and short palates; enormous masses of cicatricial tissue should not occur if operations were done in a correct manner. I am sure that the critic is correct when he says such work should better not have been done.

I would like to say a word in reply to the remarks of Dr. Ottolengui

on the short palate. I know that the work that I have done is not as well known as it might be. I trust that when my book is issued, that point will be made clear to the men who will read it. There is no need for these patients to have short palates, if the operation is correctly performed. I deplore the lateral incisions, leaving great scars made in the tissues, such as in the case mentioned by Dr. Ottolengui. The lip, he said, was bound down by cicatricial tissue. What is the use of an operation like that? The lip should be normally spread, so that you would never know the individual had a harelip, provided the operation is done properly. I cannot go into the details and explain all the technique of these operations. I want to express as forcibly as it is possible for me to do, and with all the sincerity that is in me my apprecation of the work of Dr. Case and of Dr. Ottolengui, and before them the great work that was done by Dr. Norman W. Kingsley. And up to date the work that was done by Kingsley in phonation, in teaching the use of the human voice, and how to manipulate the different anatomical parts, will stand to the end of time, with some perhaps slight modifications in the charts, but these old charts published away back forty-five years ago, are just as good as anything that has been done up to now with some slight modifications.

Since I have been attending this congress a doctor brought me a patient to see, and I am sure that almost everybody here would regard it as an inoperable case. The tissue was somewhat scarred, because it had been operated on, but the young lady is here, and I would like, if she is willing, to show this patient to Dr. Case, and to Dr. Ottolengui, as I am sure they would be glad to see it.

I will say in closing that if I am asked to operate I will operate tomorrow, and I will close that palate, and I will take up the pharyngeal muscles and make them so long they will serve every purpose.

Here is another feature of these cases. There are pictures which show extension of the lip of an African woman to the extent of six inches by wearing bows. The lips stand out like this (indicating). I have slides of such cases. You can make use of these cuts to show the possibility of the extension of the tissue, and what may be done by massage, and for anyone that has a cleft palate that is a little tight following operation, much may be done in stretching the tissues. They may be stretched carefully, and by continuous manipulation stretched for an inch, or even two inches or four, if you keep it up long enough, and these tissues can be made sufficiently flexible to perform the functions for which the palate was intended. (Applause.)

Dr. Calvin S. Case, Chicago, Ill.

I do not know that there is anything that I can say that was not said in my paper. I made no attempt at attacking the surgical treatment of cleft palate

when it was performed in a skillful manner, but in my paper I have referred particularly to cases that we occasionally see and how they should be corrected, in case we are called upon to do this work. I do, however, believe that surgical operations will in the not far distant future be confined almost entirely to very young patients, and that it will be rare cases in which the skillful and honest surgeon will attempt operation of closing wide clefts for patients over ten or twelve years of age.

There was one point Dr. Ottolengui spoke of. He seems to think that the greatest advantage of the artificial palate or obturator is in being sustained without a plate so that injury to the teeth or gums by a plate might not occur. That is a small part of the advantage. The fact that the obturator does not need to be sustained or attached to any plate relieves it of that rigidity and gives it that sensitive mobility and responsiveness to the vibratory activities of the throat muscles, which is the most important feature, and it is to that very fact that it floats so readily, that caused Dr. Brophy to speak of it as "floating palate." It seems to me to be sustained by the surrounding muscles which are thrown into vibratory activity by the voice vibrations. This palate being sustained in this way so lightly, and so sensitive to every activity of the muscles, throws itself into vibratory activity and becomes a perfect diaphragm for the transmission of the vibrations of voice which are then carried into the oral chambers, the sounding board of the head, producing what is known as perfect resonance. We hardly realize that the air itself is almost entirely closed from the nasal chambers when we are making perfect tones of speech. In all of the sounds, with the exception of "m," "n" and "ng," the air itself is carried out of the mouth and is used in the mechanism of speech for the articulation—for the distinct articulation—of the various words; but the vibrations of voice are carried through the palate as they are through the normal velum palati, and that is what produces perfect resonance. If the slightest opening allows the air itself to pass into the nasal chambers, we get a nasal tone or nasal resonance, and that also is different from what might be called catarrhal tones.

If there are any questions you would like to ask, I will be glad to answer them.

Dr. Ottolengui. How do you determine the length and width of the posterior margin of this appliance?

Dr. Case. That is done by a trial, and it is fully explained in my book that is soon to be published. I need not go into it extensively at this time but after getting the impression, as will be explained in my clinic, I make also a model of the palate, with a wire extending back, which, I believe, was original with Dr. Molyneaux, who first used wire

for taking the impression. I use wire not for taking the impression, but for sustaining the roll of modeling compound while fitting the model of the veil of the obturator to its proper relations with the pharyngeal and palatial muscles. I cannot go into this fully, because it will take much of your time. A perfect acquaintance with the position and action of these muscles is of the utmost importance.

I am very glad to have heard Dr. Ottolengui say that he is now making the border of the veil of the velum thicker instead of having it thin. It is a great advantage, because it gives a firmer contact surface to the muscles in closing the naso-pharyngeal passage.

Dr. Ellison Hillyer, Brooklyn, N. Y. I would like to ask Dr. Case if he has found any patients who have had difficulty in keeping that in place?

Dr. Case. Yes.

Dr. Hillyer. There is a percentage of cases, then, that need something to keep it in position?

Dr. Case. Yes. It is only in typical cases that it is sustained in that way; and typical cases are every kind of congenital cleft, except those which extend only through the soft palate or perhaps a little way into the hard palate. In these somewhat rare cases, it is necessary to sustain the obturator by attaching it to a dental fixture, as was explained in the paper.

Dr. Truman W. Brophy, Chicago, Ill. Who knows what medical colleges are doing in teaching correct methods of doing palate operations? I know, and it is a department of surgery that receives little or no attention in the best regulated medical schools.

Dr. Case. I know of one college that will commence next year for the first time to give systematic teaching in regard to the mechanical correction of cleft palate, and that is the Chicago College of Dental Surgery. Dr. Brophy is the Dean of that college. I got rid of a large portion of my orthodontia work for the purpose of beginning work that I have had in mind for years, and we hope to take this work up systematically. We are going to have a fine textbook for that purpose, a perfect system, beautifully illustrated, giving every detail in regard to the subject from beginning to end, even everything in relation to principles of phonology, which is quite necessary in teaching cleft palate patients how to speak.

Adjourned.

September Fourth.

Section Nine met at ten o'clock on the morning of September fourth, Dr. Hillyer presiding.

The first paper was read by Dr. Geo. H. Wilson of Cleveland, Ohio, and was entitled "Impression Materials and Impressions."*

Dr. Chas. Engstrom, Los Angeles, Cal.

Mr. Chairman, Ladies and Gentlemen: I feel highly honored that the essayist should have requested that I be one of the discussers of his interesting paper.

While the subject is not a new one, the essayist brings out a new line of thought and provides a stimulus for discussion. The general trend seems to be anti-compound. Unfortunately when compound was first introduced, it was of an inferior quality and, furthermore, we lacked the proper technique of manipulation; hence its condemnation.

In regard to the coefficient of expansion of compound and its contraction on cooling, is not the metallic tray and its ratio to be considered? The surface of the tray is smooth and polished, hence the compound does not adhere so closely to the tray, but that it can contract toward its various centers, there being constant pressure on it until it is chilled and rigid.

If it is true that plaster expands (we know that it does), and the tray used in unyielding the vault or central portion must necessarily be more compressed, and the periphery scarcely at all, as here the tray is missing and the plaster will follow the line of least resistance. It must be remembered that this material will not permit rectifying by adding to or verifying by replacing into the mouth; and furthermore, all dentures settle. Is it not imperative, then, that the bearing be on the periphery to prevent rocking?

The working properties of the two materials are such, that with plaster several steps must be taken care of at one time while the compound permits one step at a time and verifying of the same.

It is a fact that the average denture of today is made from a plaster impression; now, is the average denture of today a success from the standpoint of proper adaptation?

As it is admitted that either of the two materials may serve, with a definite technique, we will pass to the next issue, positiveness of results.

*See Vol. II, Page 345.

Positiveness of Results.

As the impression materials and impression are only a means to an end, that end being a proper fitting base, let me put this question, "Can there be anything positive without some sort of test or proof? Would it not be well to make the test under the same conditions under which the finished product will be used? Can this be done with a plaster impression?"

As to any undercuts or interlocking models, these irregularities should be discovered in the diagnosis and calculated and provided for by means of positive cores rather than to depend upon indefinite fractures and piecemeal bits, some of which are usually missing.

When it comes to ease of manipulation, it depends on how familiar we are with what we are doing. Nearly everything worth while seems difficult till we learn how, and it may be well to state at this time that nearly all failures with compound as an impression material are due to lack of the proper understanding of technique and appliances for handling the same.

As to the abuse of compound, is it not possible to abuse plaster also? I think the inexperienced or incompetent would make a bad mess of either one. Now we come to cost.

Cost of Impression Materials.

As time is our stock in trade, cost must be based upon it; but we must figure the entire time consumed, not only of the impression taking, but of verifying the same. Now tell me, does the plaster impression admit pouring, without some doctoring here or there? Again does not the cast from it need to be scraped here and relieved there, and after it is all done is it not guessing just a little? Can you prove what you have done until you have a finished base? Here is still another point; in finishing and verifying the compound impression we incidentally have located the rest position of the jaws, established the lip line, guide lines, and have had an opportunity to study the esthectics of the case in regard to contour, etc. Now, how about time consumed? I contend it is in favor of the compound.

I believe those who do use compound exclusively and continue to do so must be successful or they would abandon it, and to be successful they must be capable and progressive, and reasonably intelligent. This being true, I hardly think it wise to class them as faddists running wild.

Retention of Dentistry.

In regard to retention I assume the essayist is referring to full upper cases. I think we will admit that the most popular method of retention is by atmospheric pressure, even though plaster is used, as

by the time the scraping and relieving of the impression and cast is done successfully the bearing is on the periphery.

In my opinion retention by molecular attraction is rarely attained until the denture has been worn under stress and the soft tissues have conformed to the approximating maxillary surface of said denture. We have all seen the evidence of this change having taken place in the defaced upper maxillary tissues, due to so-called suction chambers. It is admitted that atmospheric pressure must be employed where positive retention is required. This means we must produce a vacuum. A vacuum can only be established by practically perfect contact of periphery and very close approximation of the balance of the area involved, or else the air can not be expelled. It is admitted that compound properly manipulated will produce this result. If this is true we will have a reasonably firm base, little distortion of the soft tissue, and consequently comfort, which means more power to do work, and hence more efficiency in mastication, which should be the first consideration.

Closed Mouth Method.

As to the closed mouth method of impression taking, first of all it is a matter of convenience to the operator, as it leaves both hands free. It also positively seats the impression by even distribution of pressure while the various muscles are brought into play in their usually normal positions. Does it not seem reasonable that all moving parts should be free and easy if we expect a comfortable retention? Is not comfortable retention essential to efficient mastication? Is not the mouth closed or nearly so during the various movements of mastication and articulation? If so would it not be well to consider the moving parts with the mouth closed and under stress, rather than wide open with only one or two fingers to support the tray? I contend that the muscles of the lips, cheeks, tongue, and fauces can act with greater efficiency with the mouth closed as this is their normal working position. It must be remembered that the patient does this work and that much depends on his co-operation. Hence normal movements and positions are imperative.

If for any reason we are unable to get the assistance of the patient, we must be resourceful and overcome the difficulties as best we can, here as in all other branches of dentistry. As every case presents some peculiar conditions we must solve the problems as they come up, by use of materials and methods or combinations that will give the best results.

To do this we must familiarize ourselves not only with the materials, but also with all the various techniques of manipulation, and further we must pursue the same degree of accuracy and care in all the various steps following the impression taking even to the final finishing and placing of the denture.

Having done this, I think we are approaching scientific dentistry as nearly as present conditions permit. As long as our patients are more or less of an uncertain quantity, experiments will be needed to establish the facts. If by so doing we become empirical, it is not from choice or incompetency. Science is carefully and systematically compiled knowledge, based on facts. Were not these facts? Were not these facts established by repeated experiments and their verification?

These are my convictions, and I sincerely hope I have offended no one by expressing them.

F. W. Hergert, Seattle, Wash.

I am a great believer in the saying that there is some good in all things. Having been an advocate of the "cut and try" method, as the essayist pleases to call it, for over twelve years, and having had a reasonable percentage of success where the advocates of the scientific plaster method have met with absolute failure, I wish to take issue with the author of this paper. There is a saying, "A man convinced against his will is of the same opinion still." The essayist takes the stand that if you do not agree with his way of thinking, you are unscientific, inexperienced, incompetent or a "faddist running wild." The essayist asks three questions, and in answer to the first I will say that compound, in the hands of a painstaking, careful operator, can be made to produce better results than the scientific plaster method. Second—Yes, I believe that any dentist who is thorough in the detail of his technique can successfully manipulate compound. It is to be regretted that so small a percentage of the dentists of this country will take the time to master the detail of technique of any operation before attempting it. Third—If there is an unconscious deception in the compound method I want to return thanks that I am still in the analgesic stage.

Plaster for Taking Impressions.

Plaster, for impression taking, has been in use for some fifty years, and I want to ask, "has there been any perceptible improvement since it was first introduced?" I will admit that the essayist is one of the very few men who has been able to produce good results with plaster. I honestly believe that more men will learn to successfully manipulate compound and obtain better fitting dentures, the results that we are striving for, than by the plaster impression and cast scraping method.

Regarding partial cases and the cases that will require interlocking models, I honestly believe that with compound cores properly made and the impression then taken, results equally as good, if not better, can be obtained with compound. I admit that for taking impressions of objects such as plate glass or having a polished surface plaster will give the best

impression. But this is not the case in the mouth. Let us consider for a moment the conditions to which we wish to adapt our dentures. We have hard, bony spots, that are sparsely covered with mucous membranes; and then we have soft, spongy membrane in other spots. We have been taught for years to relieve the hard spots and compress the soft, thus equalizing the stress and giving our patients a comfortable and serviceable denture. In my hands and in the hands of the man who wants to know how, I know that this can be accomplished by the "cut and try" method much more accurately than it can be done by this scientific method of plaster and scraping.

Now, gentlemen, the time is limited for these discussions and I know that others are to follow me, so I will not take up more of your very valuable time. But I wish to say in closing that personally I am not wedded to any one method. If the advocates of scientific plaster impression taking can show me wherein their method can give my patients better fitting and consequently more comfortable and useful dentures, I am willing to be convinced.

Dr. Dayton Dunbar Campbell, Kansas City, Mo.

Some months ago Dr. R. E. Hall of Houston, Texas, becoming dissatisfied with the vulcanite bases which he had obtained by using modeling compound in taking the impressions, turned again to plaster. His dissatisfaction with modeling compound had prevailed, despite his most studied attempts to follow in its use the directions given by Dr. Greene in his clinics, and so uniquely described in his text book. The very helpful and profusely illustrated book, *"Prosthetic Articulation"* could not supply him with the reason why the base constructed upon an unchangeable cast was not retained by the patient as well as the impression itself. Had the writer not experienced in obstinate cases exactly this same difficulty, and had he not known Dr. Hall personally, and been able through association with him to form an opinion as to his ability as an operator, this method, new to many, might have been allowed to escape without notice or comment.

The Hall Method of Taking Impressions.

The Hall method of plaster impressions is applicable more especially to securing a corrected impression of the edentulous jaw. When time is a factor, its employment is a distinct advantage. The fact that the writer has obtained by this method a greater percentage of bases that did not require numerous alterations, is offered as a justification for this communication. The whole idea of muscle trimming, posterior palatal adaptation and relief without leak justly reedited to Dr. Greene, who deserves much praise for these and

many other contributions to this branch of the prosthetic art—is recognized and incorporated in this method.

The first step in the procedure is to select a large over size tray and take an impression in compound without any special attempt to secure detail. Remove the impression and place it in cold water, when the tray may be removed from the compound without distortion. With a sharp knife trim away fearlessly the excess from heel to heel and well up onto the buccal and labial borders.

This improved tray thus made of modeling compound, is partially filled with impression plaster mixed to the proper consistency, placed into position in the mouth, and the cheeks and lips allowed to assume a position of rest.

After a moment the tray may be released, while the operator cleans the plaster bowl and spatula to be ready for the second mix. The first impression with plaster will reveal a number of places where the compound shows through. These places prevent an equal distribution of the pressure and they, together with the surplus plaster at the line of demarcation between the hard and the soft palate, must be cut away. The impression is now placed in water so that the plaster of Paris may take up the water of crystallization which it otherwise would absorb from the next application of plaster—a result which would hinder a free manipulation.

A second and very thin mix of plaster, preferably with warm water and salt (this depends, however, upon the individual operator's methods of manipulations) is now applied. Using a brush, a layer one-thirty-second of an inch thick, is applied to the inner surface or intaglio of the impression, and then this quickly inserted into position—and the patient cautioned *not* to move the lips.

After a moment, the tray is again released and preparations made for the next mix. When the small pieces of plaster in the mouth indicate setting the impression is removed and examined. Any uncovered compound is an indication of pressure and is cut away, the posterior border is trimmed again, the excess of plaster beyond the compound tray removed, the impression coated again with thin plaster and the process described above is repeated.

If the operator prefers, a sufficient amount of plaster may be mixed to allow the entire impression to be submerged. The excess coating in this instance is shaken or thrown back into the bowl. This detail, however, is not conducive to neatness; besides it necessitates stirring the plaster—another minor detail that is objectionable.

The impression, before it is satisfactory, usually requires three corrections, although four and even five trials are not unusual. If, however,

after a greater number of attempts it is apparent that there are corrections still to be made, the plaster may be broken away from the modeling compound tray and the more intimate knowledge of the requirements of the individual case used to advantage in the successive steps.

These instructions apply also to taking an impression of the lower, in every detail, with one exception, namely, the patient is required to hold the mouth open and to extend the tongue. The tongue in this position prevents the plaster from encroaching upon any part of the lingual attachments that would subsequently move the denture. The lips and cheeks are slightly tense in this position, and if the impression of the lips and cheeks (both upper and lower) are included, the denture will possess the maximum of retention, due to valve action.

It is obvious that any attempt at esthetics by restoring facial contour will defeat retention in direct ratio to the bulk of the restoration. This is equally true of the Greene method.

Dr. R. E. Ball. Dr. Campbell has given you in detail my personal views in this matter, and I came to these conclusions and changed my previous methods because I did not get the result with compound I would like to have. Dr. Engstrom stated that most men use compound because they used plaster first, as plaster was here first. I used plaster last. I do not believe the physical laws involved renders it possible to get a negative of the tissues with compound alone, as it offers more resistance than the soft tissues, whereas the plaster offers practically none—absolutely none, in fact, if properly used. And that one physical law covers the entire situation. Dr. Campbell has given my method of handling the plaster.

The compound tray carrying the plaster is cut one-eighth of an inch shy all round, so that it does not touch the tissues. After the first removal, if a point shows anywhere it indicates that it is pressing against the tissues. Remove the compound that is showing through and cover with the second mix. If it shows the second time cut that out and make a third application. I stumbled on to this method. I had taken a compound impression and failed to get a replica of the mouth that was satisfactory; so I applied plaster to the compound and most of the plaster was shed from the compound: there was very little left. It occurred to me to dip the same impression into a second mix of plaster. By that time it was pretty generally covered with plaster and the details of the mouth were well indicated. I put it in a third time and each time I improved it. With the plaster you get finer definition and more bearing for the denture than is possible with the compound alone. The case I have shown in the clinics was made last Friday by this plaster method, and is a week

old yesterday and has never been touched, and there is not the slightest soreness anywhere.

Chairman. Will you kindly indicate the treatment for excessively soft ridges?

Dr. Hall. The case I spoke of, the one that caused me to adopt this method, was of that type. The mouth had the worst possible shape; all but a little of the alveolar ridge was absorbed. The mucous membrane retained its shape, but the folds were full of pus, adhesions, etc. Compound would not give any detail; just a flat impression; I could not get it soft enough. That as I understand, is just the type of case for which compound is recommended. With a hard unyielding mouth we can get the impression with any material, but where we have more delicate, soft tissues compound cannot be softened and made sufficiently plastic. It will offer more resistance than the tissues and you cannot get a negative of the tissues with material that offers more resistance than they do.

Dr. J. W. Greene. I find myself in a rather peculiar position. In the first place, I find men discussing and discounting modeling compound, who have no conception at all of the material or its use. Some say, do not press on the soft tissues. That is where you must press! There is not a man here who ever did take an impression in plaster or modeling compound or anything else, that got it wrong in the hard parts. You need an equalized strain on the hard and soft parts, and many get the strain on the soft parts to equalize the strain on the hard parts and then test in the mouth and see if you have that stress or not. You take an impression and every place on the hard part is right, and then by the old method you scrape the only part that is correct. Is that not funny? I want to go where it is incorrect and correct it. Haskell is the best guesser probably in this country or any other country. But he never made a plate in his life where he had to scrape except by guesswork. I have no guesswork in my method be it plaster or compound.

Dr. L. P. Haskell, Chicago, Ill. It is not necessary for me to discuss Dr. Wilson's paper. It is the most admirably written paper I ever listened to on this subject. I agree with him fully in all he has said. I hold a peculiar, unique position, as I believe I am the only living dentist who saw the first impressions taken in plaster in 1844 in Boston. My Preceptor brother-in-law, Dr. Hanson, took the first impressions in plaster. All impressions previously were taken in beeswax. They simply covered the alveolar ridge, as plates were held in place by spiral springs. Dr. Hanson used the ordinary plaster of commerce. He took the impression to test the results.

He made a die of tin and a counterdie of lead. He made the counterdie first, simply drying the plaster model thoroughly and holding it in the melted lead, then breaking out the plaster; placing a rim of paper around and pouring in the lead. He swedged a gold plate, tried and found a strong adhesion. He soldered a staple in the centre, placed it in the mouth, attached a long wire to which an ordinary water pail filled with water was hung: fifteen pounds weight, and the plate held. Think of making a set of teeth on a plate made under those conditions: a common tin die with lead counterdie. From that time on he and others had no further use for wax impressions, of course. We went on taking impressions in plaster, but after awhile used zinc for dies. Some years later my partner and I were first to introduce babbit metal into the laboratory. It was known as Babbit's anti-friction metal for machine bearings. From that day to this I have had patients using gold plates: nothing else.

Dr. Greene made the remark that we who use plaster work by guesswork. That we have no tests. We do have a test! I find a plate swedged on babbit metal, non-shrinking, and fitting accurately the plaster model. If the plate fits the model, I am sure it will fit the jaw. If it does not (which is very rare) I simply take a new impression. I very rarely have to take a new impression in making metal plates. For seventy years I have been doing nothing but making artificial dentures from plaster impressions. I have had the notion that I was doing fairly well and that it was not guesswork with me. Dentists who have seen a good deal of my work in the mouth, said it was pretty satisfactory, even the heavy continuous gum dentures, three times as heavy as rubber plates with air chambers on flat surfaces, and patients did not complain of the weight. Dr. Greene says my work has been a failure, because I could not fit plates from plaster impressions: it must have been a failure all these years. I thank him for telling me.

Dr. Greene. I said you guessed at it.

Dr. Haskell. That is practically a failure, to say you have guessed it. That is all I have to say.

Dr. J. Leon Williams. I do not want to encroach on the time you have allotted. I would like to say a few words. I do not know how long Dr. Greene has been using compound as a material for making impressions. I only heard of his method about five years ago, and ten years before that time I had been using compound for taking impressions in difficult cases. I was forced into it from my own experience. It was not because of any faddism or any special movement: it was my own personal experience that forced me to try compound in difficult cases. The more difficult the case the better the success I had in the use of compound, but I did not

get up here to speak of my own experience, except to relate a little circumstance bearing on this whole discussion. Aside from my own son, I never sent but one student to Dental College. My son was my assistant in prosthetic work for a number of years, and he was instructed in using compound, as we had worked it out. I gave him a letter of introduction to the Dean of the foremost dental college in this country, saying I thought he would find him skillful in prosthetic work. They had a difficult case of a full set of teeth three months after he entered college. They made it over three times, and the rigid rule there was that no material except plaster should ever be used in taking impressions. If that is not faddism I do not know what faddism is. That was the rule. The Dean had in mind what I had written him (he knew me well), and sent for this student. He told him the circumstances, saying they had made three trials and failed, and that this patient was talking unpleasantly about the institution. He asked: "Can you do anything?" My son replied: "I should like to try, if I can have my own way." "The patient is in your hands; proceed as you wish," the Dean said. He started by taking a compound impression. The professor of prosthetic dentistry said: "You cannot do that. You cannot use anything but plaster." He replied: "You go talk with the Dean." He went on, and made a full set of teeth and succeeded the first time admirably. The patient had no complaint after wearing the plate for a week. The Dean sent for the patient and for the Professor of Prosthetic Dentistry and Demonstrator and others, and he said to the patient: "Are you perfectly satisfied with your teeth?" and she said, "Perfectly." He turned to those gentlemen and said, "Gentlemen, you see it can be done!" I think that may stand as the last word to be said as to the use of compound

To the extent that a case is difficult to fit (speaking of full edentulous cases), then just to that extent I think compound is valuable, and I think wherever plaster has failed you can use the words of the Dean of the foremost institution in this country, and say, "You see, gentlemen, it can be done."

The Chairman, Dr. Killyer

I think Dr. Williams must have been speaking of some years back, as I know of no college that does not use its option in this matter now.

Dr. Wilson. (Closing)

I wish to express my appreciation to Dr. Engstrom, because he favored me with a typewritten copy of his discussion; also to compliment him upon his effort, for he very fully and correctly presented the arguments of the modelling compound enthusiasts. However, I must submit to this intelligent audience, and, readers of the transactions of these proceedings, the merits of the arguments presented in the paper and discussion, for both

cannot be correct; because the paper was aimed directly at the arguments as presented by the discusser.

However, as the paper seems to have failed to convince the discusser of the illogical and erroneous nature of his arguments, it is well to review some of his statements. He says: "It must be remembered that this material (plaster) will not permit rectifying by adding to and verifying by replacing in the mouth." In this the doctor is in error, for this afternoon Dr. Rupert E. Hall will prove in his clinic that a plaster impression *may* be more readily rectified and verified than modelling compound ones.

He asks the question: "Is it not imperative then that the bearing be on the periphery to prevent rocking?" *YES!* And the peripheral bearing can be more quickly and positively produced by plaster than by compound.

He makes the assertion: "It is a fact that the average denture of today is made from a plaster impression." And then he asks the question: "Now is the average denture of today a success from a proper adaptation standpoint?" This is another error. It is very probable that far more "average dentures," for the past forty years, have been constructed from compound impressions than from plaster ones; also, there has been but little improvement in the material for nearly half that time. However, owing to the cleverness and untiring efforts of a few men, vast numbers of the profession are having their sound sense swept from them as by a cyclone. This paper was presented as a voice crying in the wilderness, that some may be saved future humiliation and disaster.

The paper did not condemn modelling compound, but it did condemn empirical methods and fashion. It explicitly conveyed the idea that compound is a valuable addition to our equipment, also that the profession owes a debt of gratitude to Dr. Greene for valuable teachings. It also expressed a regret.

Further on the doctor takes up my statement of "time being that for which the professional man charges his fee." I am very sorry he wrote that paragraph, because it shows his mind has been hypnotized; for I know his esthetic sense has been much more developed than that paragraph implies.

A copy of Dr. Hergert's discussion was placed in my hands just before the opening of this meeting. I am sorry the doctor did not more fully comprehend the ideas I endeavored to present.

He says: "The essayist takes the stand that if you do not agree with his way of thinking you are unscientific, inexperienced, incompetent or a faddist run wild." Now that conveys a very wrong idea. I made two classes: First—inexperienced and incompetent which we all recognize in the profession, and then said we have nothing further to say of that class. The second class described those disagreeing with me as unscientific

and faddist run wild. Let us see whether I am justified in making such a statement. Unscientific—Science is classified knowledge. Dr. Greene and his disciples have been very active and thorough in their teaching of the technique of modelling compound impression taking, but it has consisted of—do this and that—a rule of thumb. Now, a science requires an intelligent presentation of the underlying principles. The principles upon which impressions are taken are based upon the laws of mechanics and physics. I took Dr. Greene's course seven years ago in Boston; Mr. Supplee's course two years ago in New York and have met these men and others since, in various cities in the East and Middle West, and here we are, all of the leading factors in this discussion, upon the Pacific Coast. I wish to say that so far as I know, this paper, however feeble it may be, is the first attempt at presenting the physics and mechanics of impression taking. The paper was intended to show that all past teaching has been of an empirical nature, and, was a plea for scientific presentation.

There seems to be an air running through this discussion that I am fighting men. That is far from my nature. I have a very kindly feeling for, and admiration for all these men, and desire to be considered their friend, one that will tell them of disagreeable things as well as pat them on the back.

Farther on Dr. Hergert says: "If there is an unconscious deception in the compound method I want to return thanks that I am still in the analgesic stage." Now, I know the doctor so well that I know that was purely a rhetorical expression, that he does not mean anything of the kind. For I know he is one of the most progressive of dentists, and desirous for scientific dental knowledge.

The other points in his discussion were inclusive of the stock arguments and need no consideration.

I wish to thank Dr. Williams for the good sense of his talk which he closed with this thought: That modelling compound is the best material for all of those difficult edentulous cases, and the more difficult the more essential, but that plaster is the best for partial cases. This implies that all ordinary and simple edentulous cases should be taken with plaster. This perfectly expresses the thought and practice of the essayist. The only criticism to be made of his statement is one of expression. He says: "All difficult edentulous cases." The truth is that these *so-called* difficult cases have ceased to be difficult because we have learned how to make a success of them; and it is for that knowledge we are indebted to and honor Dr. Greene. If Dr. Williams will change his expression of "difficult cases," to "a certain class of cases," we will agree upon the proper use of plaster and modelling compound.

Time does not permit, nor, is it necessary to review each of the arguments presented, because they are all of the same tenor.

The last sentence of Dr. Engstrom's discussion expresses the kindliness and trueness of his heart when he says: "I sincerely hope I have offended no one by expressing my convictions." Why should anyone be offended? He has manfully and courteously presented the arguments accepted upon the other side of the question. The essayist also trusts that the paper may be accepted in the same kindly spirit, for it was written with malice toward none, but with a desire to cause men to think and to create, or compel, if you please, a discussion that may enlighten. I thank each discusser for his effort.

I wish to thank those of my friends who still make a proper use of plaster methods and have supported me in this discussion.

Dr. Hillyer, Chairman. We have two gentlemen in the room—one from Sydney, N. S. W., and one from Santiago, Chili. They have something very unique which I understand can be presented in just a few minutes. It is somthing radical.

Paper presented by Dr. R. Morse Withycombe, Sydney, Australia, "Resiliency as Opposed to Rigidity in Artificial Teeth."*

The Chairman. There will be a clinic accompanying this paper, given on Tuesday afternoon.

Discussion of Dr. Withycombe's Paper.

Dr. J. Leon Williams. It is a very curious fact that a dentist of New York, a year ago, without any knowledge of Dr. Withycombe's work, in discussing the new moulds of teeth, said there was one thing no manufacturer nor anyone in the profession had ever accomplished: the production of a tooth so mounted in the plate that it would have approximately the same conditions as are present in the mouth in the natural teeth. He thought that extremely desirable, but did not know that any effort was being made in that direction.

I have learned through long years of experience to be cautious about indorsing a thing without experience in it. My present impressions are favorable. I think we have something here of very real value. Certainly in all difficult cases, and in all removable bridgework, it is of very real value. My confidence is very greatly increased in it by the endorsement of

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*See Vol II Page 351.

Dr. Magnus, in company with all of the leading dentists in Australia who have made practical tests of these teeth in the mouth. Dr. Magnus stands for all that is highest in dentistry in every field. I have known him many years and have unqualified confidence in him, but I wish it understood I am giving you only my general impressions, and am not speaking from my own experience

Dr. E. R. Magnus, Sydney, Australia.

I thank Dr. Williams for the nice words he spoke of me. With reference to the resilient teeth, two years ago Dr. Withycombe showed me these teeth, and as my work was directed more in the operating line than having to do with artificial teeth, I did not pay much attention to it; but just before leaving Australia I was forced to do so, inasmuch as a number of our best known men in Sydney—men of the highest qualifications, and men connected with the School—teachers and lecturers, showed me practical cases that were really astounding, telling me of the disadvantage they had had with other teeth and which they had overcome by using this method of Dr. Withycombe's. It was so good that Dr. Moxam, Dr. Hinder and others (I think I could enumerate fifty or sixty), have been using this method, and these men spoke to me about it just before I came here. I said I was going over to the Congress and would be very pleased to show it.

Doctor Withycombe there and then made up his mind to come over. That was as much a surprise to me as to you. Only since I have been here in this city have I seen some of the teeth he brought with him. I advise you all to see them.

Dr. Hergert, Seattle, Wash.

I want to say a word or two with regard to a particular coincidence with reference to this resilient tooth. Some two weeks ago I landed in the city of San Francisco to prepare for my clinic, and was with Dr. Edwards, of Oakland. He had received, previous to the day of my arrival, a paper which will be read by title and be published in the Transactions of this Section—the idea coming from Japan. The author is Dr. Seimaro Shimura. He has this same idea; to get the resiliency in the teeth or in dentures. Before I had had time to read the paper of the gentleman from Japan, in came Dr. Withycombe, from Sydney! Dr. Withycombe had destroyed the denture he was wearing to make bacteriological tests, and I made an impression for Dr. Withycombe so he could make himself a new set of teeth.

I have had the pleasure of seeing that piece of work, a plate with the resilient teeth upon it, and the way he can go after loaf sugar and such things and crunch them up is impressive. If he can do that without the least particle of feeling of the soft tissues or ridges, what does it mean

to us? It is a shock absorber, and it will do away with much absorption we have been having, due to the constant pounding of the hard teeth that have no resiliency to them.

The Chairman regrets the misplacement of the paper of Dr. Manhood, stating it will be published in full in the Proceedings,

The papers by Dr. Alexander Manhood, Santiago, Chili, were entitled: "Simple Face Bow for Taking Antero-Posterior Length of Jaw,"* and "Home-Made Interchangeable Teeth for Crown and Bridge Work."**

Chairman. There are two papers in our hands, but the gentlemen are not present. It is not just to those who came to present these papers. Titles follow:

"Principles of Kitami's Rubber Plate Work,"*** by Yukimasa Kitami, Tokyo, Japan.

"Anatomical Dentures,"**** by Seimaro Shimura, Tokyo, Japan.

"Flat Jaws, Upper and Lower,"***** by Loomis P. Haskell, Chicago, Ill.

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*See Vol. II. Page 356.
**See Vol. II. Page 354.
***See Vol. II. Page 361.
****See Vol. II. Page 365.
*****See Vol. II. Page 358.

Section X.

Education, Nomenclature, Literature, History, Legislation.

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Education, Nomenclature, Literature, History, Legislation.

Chairman, C. N. Johnson, Chicago, Ill.
Vice-Chairman, Homer C. Brown, Columbus, O.
Secretary, Henry C. Fixott, Portland, Ore.

September Second.

Dr. Brown. Ladies and Gentlemen: The section will please come to order.

It is with deep regret that I announce that the Chairman of this section has been unavoidably detained, and further, that the Secretary of the section sent a telegram a couple of days ago stating that it would be impossible for him to be present.

Dr. C. E. Rice, of Los Angeles, California, has kindly consented to serve as Secretary *pro tem,* and as such official he should be given full credit for officiating in this capacity.

As Vice-Chairman of the section, I am expected to assume the duties as Chairman, and Dr. Johnson has furnished me with the address that he prepared for this occasion. I will present this at this time, but before doing so will call Dr. L. L. Barber, of Toledo, Ohio, to the chair.

Dr. Barber here took the chair.

Dr. Homer C. Brown then read Dr. C. N. Johnson's address.*

Dr. Brown resumed the chair.

Dr. Brown. The first paper on the program is "Dental Literature Past and Present,** by Dr. Herbert L. Wheeler, New York.

The Chairman called upon the discussers scheduled, neither of whom was present. It was then announced that the paper was open for discussion.

Discussion of Dr. Wheeler's Paper.

Dr. L. L. Barber, Toledo, Ohio. Mr. President, in text books it seems to me that in the last six or seven or ten years, probably, we have not had more than two or three books that have practically a new text. They are mainly later editions of the old

*See Vol. II. Page 371.
**See Vol. II. Page 375.

text, with a little bit of new material added here and there. The text of the book of the late Prof. Black is practically new, and he has some remarkably fine material; but I do feel as though dental literature, in the way of books, is very passé stuff, and I hope that we may in some way stimulate writers in dental literature to get up something new for us, and in better shape than we have been having.

I have an arrangement with a house that publishes dental books to send me every new book that comes out, and if it is enough different from the last edition or any that I have, I buy it.

Dr. L. G. Mitchell, Oklahoma City, Okla.

I believe we can get up at least a little discussion on the first part of the gentleman's comments.

I deplore the seeming fact that dentistry is largely controlled, not only in the dental meetings, but in our literature, by college men. I recognize that fact, also that most of our progress as a profession comes from the efforts of these college men, and I want to give them all due credit, but at the same time, the element of what we might term the "commercial spirit" is entering into our college life to such a degree that it does influence the profession in the way of retarding real progress. Precedent and custom are not necessarily synonomous with progress and improvement and I wish that the personnel of the profession could grow strong enough to be able to stand alone and to direct the policy of our meetings and our professional literature without these men, many of them theorists, completely dominating our literature.

Dr. C. E. Rice, Los Angeles.

Mr. Chairman, the subject of the paper should be of vital interest to our profession. It has been said that the literature of a nation is the standard of its civilization, and if that be true of the nation, it is likewise true of a profession.

We hear from time to time various criticisms, especially of our periodicals, and probably some of these criticisms from various quarters have merit.

I think such a paper as this has a place on our program, and I am glad that a man of the standing of Dr. Wheeler has presented his views, and I hope that there will be good come from it.

Dr. H. E. Friesell, Pittsburgh.

The paper is a timely one, inasmuch as it touches upon certain phases of dental literature that have a far reaching effect and which are almost universally overlooked.

Dentistry is a young profession and the innumerable things that are presented each year produce a confusion that makes it very difficult

for the average practitioner to differentiate between matters of primary importance and those of secondary interest.

The essayist draws a comparison between the large proportion of what might be called high-class scientific papers that appeared in the earlier dental literature and the abundance of mediocre material that crowds the pages of our modern dental publications.

I do not think, however, that this is due to any lowering of the average of intelligence or education in the profession in these times. Rather do I think the condition can be attributed to the fact that at times in dentistry we have had men of high intellect and broad education; and in the earlier days, when dental societies were fewer, the better educated men were the ones who naturally appeared more prominently in dental literature, and the lesser educated did proportionately less writing.

In the olden days the difference between the better educated members of the profession and those at the other end of the scale was much greater than is the case today. Then, only the fit wrote. Now, with our multiplicity of dental societies and organizations, with an endless number of meetings and a great demand for essayists, everybody writes, and such writings, whether fit or unfit, are eagerly sought after by dental journals, which must have something to print in between the pages of their advertising matter.

There is just as good, probably better, and certainly more, good literature today in the dental profession than ever before, but as the essayist well says, the modern avalanche of alleged scientific treatises submerges the more important articles to such an extent that it is almost impossible to sort out the wheat from the chaff. What dental literature needs very much at present is a censor, with intelligence enough to discriminate between the material that is suitable for momentary discussion in the local societies, and that which presents important facts or ideas and is of sufficient value to merit a permanent place in our literature.

We have too many mediocre dental journals. Too many mediocre essayists and treatises appearing, and a dental index, such as proposed by the dental index bureau of the American Institute of Dental Teachers, is very much needed.

Under the reorganized National Dental Association the matter of providing a dental journal that will permit of a proper selection in dental literature, seems possible in the very near future.

Dr. Wheeler. Mr. Chairman and Gentlemen: There is nothing further that I wish to add to the discussion at this time.

The section then adjourned.

September Third.

Dr. Homer C. Brown, Columbus, Ohio, Chairman.

Section Ten will now come to order.

Dr. Brown. Unfortunately the Vice-Chairman, who was pressed into service in the absence of the Chairman, was persuaded to present a paper on Dental Legislation. I will ask Dr. Samuels to preside.

Dr. Herbert J. Samuels took the chair.

Dr. Homer C. Brown, Columbus, Ohio, read his paper entitled "Some Suggestions in Securing Adequate and Uniform Dental Legislation."*

Discussion of Dr. Homer C. Brown's Paper.

Dr. Eugene R. Warner, Denver, Col. Mr. Chairman, Ladies and Gentlemen: A paper eminating from the hands of Dr. Brown certainly should receive consideration, for he has not only presented excellent points upon this subject, but he is well qualified to express an opinion. His long service in this line, his association with the National Dental Association and with the Board of his own State, Ohio, give him that wide experience and large opportunity to offer expression.

He has given us a picture of ideal legislation; he has pointed out some of the faults which exist, perhaps, at the present time, and has offered something that may lead to a solution of some of the difficulties.

Until we can have perfect men and women, who will abide by the laws and men who will enforce them, as well as enact them, we will not attain that ideal legislation which we may desire.

Dr. Brown has touched upon one point which I think excellent; he refers to the legislators being influenced by their constituents. If we have no members of our profession in the legislatures of our states, we can appeal to our own legislators personally for the dental cause, and where our views are presented in a right manner, they will receive recognition by men who are honorable in their calling.

I may say seventy-five per cent. of the differences in our communities arise from a lack of appreciation of the other man's point of view;

*See Vol. II. Page 380.

and if it were possible for us to see things in the light in which our opponent sees them, we would grasp some points which might be to our advantage.

When it comes to the question of presenting a matter before an organization, Dr. Brown has spoken of compromise. How true that is in all of our work of today; in all of our legislative bodies—"compromise." You may be endeavoring, perhaps, to carry out what you feel in your mind is the ideal solution of a problem, and yet you cannot force it. If you do force it frequently you lose it.

Therefore, it becomes a matter of compromise. It is different from the old periods of the days of construction in our national body in Congress, when a leader, by his elocutionary powers, carried his parties with him to adopt his conclusions. Today, in Congress, it is a matter of committee work—the solving of problems in committee rooms—and when a bill comes before the general bodies in session it has been so analyzed in the committee room that very little speaking is necessary.

Compromise is not always advisable, but many times necessary, to gain the so-called partial loaf, which is said to be better than no bread.

State Laws and Reciprocity.

The essayist has touched upon the question of the uniformity of state laws. That would seem an admirable outcome of the present Dental Association, and yet, so long as the states of our Union vary so greatly in the needs of the people, it is a question whether that can be effectively brought about.

This logically brings up the question of reciprocity between states, states that may have, in a measure, points in common, and yet, unfortunately, where reciprocity may exist and you endeavor to admit men of attainment, men who have stood high in the profession, and yet who, for physical reasons perhaps have been obliged to move, you let down the bars and you open the threshold for countless numbers of the incompetent, who can do your state possible injustice.

Examining Boards and Politics.

Then comes the question of the political side of the appointment of boards of examiners. Too frequently it is the case that the competent men, who might decide and who have the best interest of the profession at heart, are not interested. How can we hope to get all that might be desired, judging from the standpoint of quality of the dental practitioner?

If it were possible to put upon the benches lawyers of strength and honesty of purpose we would have no need for juries, because the men who had the knowledge of the law, men who would judge impartially, would give decisions that would be just.

If we would apply that to our dental boards, and if we had as examiners men above reproach, men who were competent, not only from the standpoint of the knowledge of what constitutes an able practitioner, but also of the standing of the individual as a citizen, greater latitude could be given the boards of examiners in using their discretion. But when will we reach that ideal? Not until some of the underlying and existing imperfections of mankind are overcome.

As dental practitioners, we believe we are best qualified to judge of the necessities of our practice. Through long experience and observation we are the judges of what is necessary for the people of the community from a dental standpoint. That applies in medicine, applies in law, or in any profession. If that be the case, then the efforts of the representatives of such organization should be able to bring about suggestions at least of what constitutes satisfactory laws to govern the people.

Bear in mind that law, primarily, is for the protection of the people, and when the legislators are convinced that the statutes proposed by us are for the benefit of the people and not for our own advantage they will give us the laws. (Applause.)

Lieutenant Bernheim, Dental Surgeon, U.S.A.

Mr. President and Gentlemen: I had not seen the paper before and knew nothing of it until I heard it read. It seems to me that the idea which Dr. Brown brings to our notice of general co-operation is the most important thought in the paper; that and the fact that any legislation that the profession hopes to gain, either from the State or from the nation, must be obtained through the effort of some one head —that is, some one committee, to which all such matters should be referred, and which committee should be given the authority to decide what should not be done and what should be done.

I think that all such committees will welcome suggestions, but to them should be left the final decision.

Dr. Gillette Hayden, Columbus, Ohio.

Mr. President and Gentlemen: It is always a great privilege and pleasure to hear Dr. Brown read a paper, and especially on this subject, because in Ohio we feel that Dr. Brown has accomplished so great a work not only for us in Ohio, but for the profession in general along the lines of legislation.

I think only those who come in contact with Dr. Brown realize the immense amount of effort and labor that he puts into carrying out legislation. It is a continuous performance really to get anything done, and I know personally that Dr. Brown has labored for a great many years

to obtain the results which are now benefiting the practitioners in the state of Ohio.

Lieutenant Wolven, Dental Corps, U.S.A.

Mr. President and Gentlemen: This is, of course, the first chance that we have had to hear this paper, and it is not, therefore, possible for us to properly discuss it. All that I can say is that I agree with what Dr. Bernheim has said: that we should have one head in any legislation—either state or national. The army men at least are back of any efforts that may be made by any committee of the National Dental Association in attempting to get the legislation needed for both the army and the navy and for any state legislation.

Dr. Homer C. Brown.

Dr. Warner, in paying his compliments to a co-worker of several years, was very kind and generous, but I must return the compliment, as it were, to Dr. Warner. My work with him for several years has led me to believe that he is a man capable of viewing matters from all sections and forming a just decision.

Some of us may be led away by our enthusiasm, but Dr. Warner has usually carried with him a very excellent balance wheel that keeps him on the straight and level road.

He referred to uniform state legislation, and the fact that it is hardly possible to secure anything like that at this time. I quite agree with him, but the nearer we can approach uniform state dental laws the better it will be for our profession generally.

I stated that if ideal conditions existed we would not need these state dental laws, but the sooner and the nearer we can approach uniformity of dental laws the nearer we will get to ideal conditions. I thank you.

Dr. Herbert J. Samuels, of Oakland, California, then read his paper entitled "Commercialized Education and the Itinerant Instructor."*

Discussion of Dr. Samuels's Paper.

Dr. Guy S. Millberry, San Francisco, Cal.

Mr. Chairman and Members of the Section: It has been my privilege to discuss this problem in this state heretofore, and exception has been taken to my criticism of the subject and certain phases of it, and I have, therefore, chosen to present my discussion of Dr. Samuels's able paper in writing, that my arguments may not be misinterpreted nor misunderstood.

I recall in one particular instance when I was criticizing this form

*See Vol. II. Page 386.

of instruction and the conditions under which it was given, one of my opponents stated that in two weeks' time he had profited by such instruction to such a degree that he was enabled to double his fees. He said nothing whatever about his ability to render a better service to his patients.

There is no egoism expressed in the three I's, intelligence, industry and integrity, which Dr. Samuels has pronounced as the three great factors in the betterment of life's condition. They symbolize more than words can convey; in reality they constitute character. If present conditions do not belie it, civilization is the result of education, and since civilizaton represents the character of a nation, a people, then education is of necessity a function of the nation or of its integral parts, the states.

The Middle West and Western States, through the voice of the people, have expressed themselves strongly in favor of public education at the expense of all the people. Their greatest handicap has been the development of their resources to meet the extraordinary demands made upon their institutions for more and more education.

The essayist has pointed out that education in so far as state institutions are concerned is free, and that teaching as a profession does not pay. No specific illustrations need be given to affirm these statements. Educational literature is replete with information supporting this contention. So commonly understood are these facts that when an educational institution, or a person who presumes to be an educator, gives evidence of acquiring wealth, the question is immediately raised as to the propriety of the undertaking or the character of the school or of the individual.

Unsatisfactory Products of Schools Discarded.

He also made the statement that the educational institution does not discard and destroy its defective product. True, it cannot destroy it, but it can, and does, discard it, even to an extent equivalent to factory products, in institutions where education is the true motive, the ideal sought for.

School A, for instance, has eliminated an average of forty per cent. of its enrolment each year for the past five years. Where commercialism prevails and particularly in the instance of the itinerant instructor, he who pays, receives instruction regardless as to whether or not the student is worthy of the instruction given. It has not been an uncommon thing for so-called unethical men, who resort to advertising in a presumptious, boastful way, to take such courses of instruction at the same time with the so-called ethical men; not that this makes any difference from the educational standpoint, but it bears out the statement with regard to the

training necessary for building character, as well as proficiency, for controlling and directing the wayward tendencies of the individual.

I might properly be accused of assuming a great deal in making the foregoing comment on his paper, if it were not borne out in the representative citizenship of the state. Dr. Samuels is but voicing the opinions of leading dental educators throughout the world for the past several years; opinions which have been expressed in more ways than one, but chiefly in the one which demands more education for the dentist.

With the fact before us that educational institutions, particularly state institutions, are not conducted for profit, we are nevertheless confronted with an equally important fact that they cannot be conducted without money.

The Cost of Education.

Educators and administrative officers must live. The individual who seeks the unusual thing in education, the thing which he believes is necessary for his individual growth does not always realize that much effort must be put forth to supply that need. The universities may not possess the facilities for giving that particular type of instruction, or may not have within their boundaries the man who is able to impart it, and it may, therefore, require the expenditure of much energy and money to obtain that, which a particular individual expresses a desire for, and which he perhaps expects to receive gratuitously because his demands are made upon a state institution. When the state realizes that a certain kind of education is generally demanded it usually sets the machinery in motion to supply that demand, and when it does, the question of profit is never considered, unless it be the profit that will accrue to the people by virtue of a broader education.

It seems strange to me that men are willing to part with money very liberally in payment for some private courses of instruction, which presumably will have one of two effects, or both—that is, increasing their knowledge or increasing their revenue. Yet if these same men were asked to contribute a like amount to a university for the purpose of receiving the best instruction to be had on the same or any other subject, in equally as practical a manner from the best recognized authority in the land, I doubt whether they would as readily part with their money.

The money that has been expended for private courses given by itinerant instructors in San Francisco and vicinity during the past four years would provide an excellent teaching equipment and the best instruction in the country on all the advanced subjects in dentistry for all of those who took such courses, and leave in perpetuity a teaching

unit which would continue to provide post-graduate instruction for years to come at a very nominal outlay.

Quiet reflection sometimes brings solace; sometimes despair. I wonder how many men compare their reflections of their Alma Mater with their reflections on other sources of education that have come within their professional activities.

Post-Graduate Teaching by University Schools.

Education is an enduring thing! Universities are the highest educational agencies. They are a part of the state; they represent the will of the people. They grow in direct proportion to the willingness of the people to aid in their growth. The dental profession can accelerate or impede the growth and usefulness of the dental educational institutions in direct proportion to its willingness to aid in this endeavor. It little realizes how much good it can do in dental education when organized and especially when organized on such broad lines and with such a possibility of membership as the National Dental Association has today.

Every dental school, and particularly every school subsidized by the state, is in a better position to supply post-graduate instruction or special courses on special subjects, than is the itinerant teacher, provided the profession demands it and is willing to do equally as much toward establishing such courses as has been done in encouraging private enterprise. I may say that I believe the dental schools do not covet these opportunities, but that they are willing and in a position to offer them if the profession will lend its organized support.

There is a responsibility which university dental schools should assume in addition to improving and elevating the status of the dental graduate each year, and that is to provide courses of instruction for the graduate of a decade ago, that he may come back and profit by the advances made in his profession with which he may not have become familiar. Create a demand, the supply will follow.

The paper by Dr. Samuels is indeed commendable. It presents a clear scrutiny of a new problem at close range, as well as defining an old problem, soundly indorsed, which has lived for countless ages and will continue to live. Education is the acquisition of knowledge. It forms the common mind. It should be conducted without a desire for profit, and at all times with the highest motives and ideals before it—a service to mankind!

Dr. Eugene R. Warner, of Denver, Colorado, was here called to the chair.

The Chairman

The paper is now open for general discussion. Inasmuch as this is a comparative new problem, I should be very glad indeed to hear from any and all of you. Give us your own opinions. Such expressions will be helpful, no doubt.

Dr. Robert Burns, San Francisco, Cal.

From the paper by the essayist there can be absolutely no dissent. I think we all agree on that. It seems to me that the discusser, Dr. Millberry, hit the nail squarely on the head when he made use of that expression, "the will of the people." No community can rise above the will of the people any more than water will rise above its common level, and this problem, it seems to me, must be attacked through the medium of the people, through a better exposition of the aims of dentistry directed towards the lay mind.

Dentistry is a comparatively young science. There is today greater opportunity for the dental profession than ever before. The medical profession is daily examining the mouths of patients more than ever before, and the demand for more knowledge manifested in the desire of dentists to join classes is met by the men who always meet such demands first, by the commercial people with their so-called "post-graduate courses." We must admit that they have done some good, but they have also done great harm.

On this coast the University of California is meeting the demand of the profession at large and its graduates for post-graduate teaching. But they have not the money to do this to the extent that they wish, and I know that the financial management of our institution will expend more in proportion on other departments than it does in the dental department. Why? Because to the lay mind a tooth is looked upon as being worth a dollar for the extraction, or, when a little gas is administered, perhaps five.

It rests with us to educate the patients to the value of what is in their mouths. That, it seems to me, is the only way to get a result. We must educate our patients and enable them to look upon these teeth from the right point of view, but first of all we must make our own profession do the same. There are too many of our profession who look solely to the dollar or to the mechanical point of it. That is why they reach eagerly for a certain medicine, a certain instrument, to accomplish wonders.

Progress in this and other lines in a community will depend upon the impetus exerted. Emerson has said we must "hitch our wagon to a star." Some day dentistry will be advanced. Education is practically free to the public. We educate our people to earn a living, but if they

get sick and cannot continue earning their living what do they do? They must die. Look at our schools in which there are thousands of children unable to pay for their dental service!

Dr. Post, San Francisco, Cal.

I rise to argue this matter from the standpoint of a guilty one. I spent money on one of these propositions, because I felt that with more knowledge I could do better service. I bought a very elaborate set of instruments and spent a great deal of time in acquiring the knowledge of how to use them, and particularly how to sharpen instruments.

I believe in post-graduate work, and I want to state first, Mr. Chairman, why I took this course. I felt that the set of instruments offered me was superior to any other that I knew of, and there was no other way of getting that set. Consequently I was forced either to take the course, or do without implements.

I think that we should really conduct our annual meetings as a post-graduate course. I keep in pretty close touch with our magazines, and the Oklahoma method seems to me rather an ideal one. We have tried to accomplish something in that line during our winter months by having a university extension course that has done good. That was instituted largely to offset these commercial schemes. I think it would be a very good thing if we could arrange with our universities in this city to have a practical course in the summer time at least similar to the Northwestern University, in Chicago. They have a six-weeks' course every year.

There are certain phases of dentistry that we all feel we are not as proficient in as we would like to be, and there comes along some one that shows us what he has, and we believe that if we had that, not that we could make more money, but that we could give our patients better service; and we feel that in being able to give the greater service, even at the same fees we have been receiving, that we are justified in taking them.

Dr. H. A. Frederick, San Francisco, Cal.

I wish to take advantage of the opportunity to thank Dr. Samuels at this time for his reference to my address before the State Society. I did not know that there was anything in it that was worth remembering, but I thank Dr. Samuels for having referred to it.

We speak of correcting this fault by educating the patients. I think, speaking of the itinerant salesman or instructor, that we would do better to try to instruct the dentists. It seems to me that there lies the great fault.

Dr. Post has defended himself. It is true that in that particular

case the instruments were not obtainable in any other way than by taking the course, but I think if the dentists had simply banded themselves together as they did in taking the course, and had refused it, that man would want to sell his instruments and would sell them other than in the way he did. I think that is the keynote, really, to the proposition, and if we will discourage these things, rather than let them have our financial assistance, such methods would be discontinued.

Dr. H. J. Samuels

By way of explanation, I might tell you why I have failed to particularize or specialize, or make any allusions which would identify any one thing, city, firm or corporation in this matter. Rather, I took you back far into the dim regions of antiquity, as far as I could get in history or literature or written record, and the trouble existed in that day just as it exists today; so that I have not brought forward before you a new thought from the ethical or moral viewpoint.

We see that in Ecclesiastes, where the record is found that they did not think it necessary to examine into the unclean, and they specified a pig or a camel at that time. These animals represented something unclean. But they took the highest representation, something that typified something great or something ideal—a religious teacher—and held him up for criticism or for examination, not to see whether he was clean, but to see whether his acts were in harmony with his profession. So, with that before me, I asked this question: "Is the representation of the so-called itinerant instructor in harmony with his professions? Is he an educator, or is he an exploiter?"

In defense of that I take you back to Scripture again and quote: "In vain have you acquired knowledge, if you do not impart knowledge to others." And I believe you will all agree that in imparting knowledge we do not mean selling knowledge.

With this explanation I believe that the discussion of the subject may speak for itself. I thank you.

The section then adjourned.

September Fourth.

Dr. Homer C. Brown, Columbus, Ohio, presided as Chairman.

The Chairman. I will appoint Dr. L. D. Jones, of San Diego, California, Secretary *pro tem.* The section will please come to order. Unfortunately it seems as though it is impossible to get started on time. In order to complete our program we will have to begin without a large attendance. Dr. Newkirk, of Pasadena, California, will present the first paper this morning entitled "What Is Dental Literature"?*

Dr. Newkirk. Mr. Chairman, Ladies and Gentlemen: I believe I never had a smaller nor a more select audience.

Initiative is the ability possessed by one person to lay out work for another. The initiator is limited only by hours of wakefulness and the scope of his imagination. He organizes conventions, appoints committees, placing others like himself at their head. And then one of these initiators calls upon the initiatee with imperative command: "Do this," and he doeth it.

It has been my misfortune to have a number of friends with wonderful initiative. Among them is the Chairman of this committee. I would as soon try to dodge a cyclone in immediate presence as to escape him two thousand miles away. When he commands me to write a paper he knows very well that in justice to myself I ought to consign him to the realms of the unrighteous; but he knows that because he is my friend and I belong to the church, I will not do that.

The initiator these days begins his operations by applying "salve" to the place he is going to "lance." He writes: "I thank you in advance. I have not discovered that this makes the pain less for the initiatee. And he is always given *carte blanche.*

I might have undertaken to give a résumé of dental literature, and "point with pride" to a lot of statistics, but such a paper, it seems to me, would be quite valueless. A number of such papers now repose within the covers of transactions, blushing, if they blush at all, unseen. Unless I could say something with practical application to the writer and the reader of today and tomorrow it were better to have made the consignment above mentioned.

Dr. Newkirk here read his paper.

*See Vol. II. Page 439.

Discussion of Dr. Newkirk's Paper.

Dr. Jean Cline, Portland, Oreg.

In discussing a paper covering such an extensive subject as "What Is Dental Literature?" one must necessarily be influenced by the impressions he receives through his own eyes, and my conception of this paper must therefore stand sponsor for the following criticism:

It verges on impertinence for one of my experience and attainments to presume to find faults or omissions in an article written by such a student as the essayist, and yet I cannot but feel that I wish Dr. Newkirk had gone more into detail on the advisability for our profession to possess a distinctive National Dental Journal, a journal issued monthly or semi-monthly, in which all that is good could be presented; a journal in which could be found censored articles that possess the virtue of real merit.

I fully appreciate the truth of the statement made by the essayist, that the real student finds much of pleasure and benefit in the quiet perusal of the word pictures painted by the master hand of the true artist, but we must not overlook the fact that the "true student" represents but a fractional part of the dental profession.

Admitting that our ultimate aim is to serve the public, and serve them well, is it not a reasonable deduction that dental literature shall be so presented that it will reach and impress the vast majority of our profession?

It seems to me that a recognized National Dental Journal, edited by competent men, and presenting in a terse and intelligent manner the carefully censored articles that should be a component part of it, free from the influences that must necessarily be reflected were its purpose to advertise the wares of the manufacturer, would be welcomed by the majority of us with an enthusiasm that will never greet the numerous hit or miss periodicals of the present time.

The majority of the stuff (I use the term advisedly) that usurps our time in the reading might better not have been printed, and even the wordy effusions of the pseudo-scientists might well be laid on the shelf until time puts the stamp of approval on some of their more fortunate guesses.

I have thoroughly appreciated the effort of our good friend, Dr. Newkirk, and regret with him the fact that the dental profession is not more studious, but I firmly believe that one of the main causes of this condition is directly due to the amount of wild assertions and bumcomb statements forced on us by the mass of advertising manufacturers' periodicals, called dental journals.

Dr. Newkirk. We would be glad to hear from Dr. H. C. Miller, Portland, Oregon.

Dr. Herbert C. Miller, Portland, Ore. It has been a great privilege for me to be here this morning and listen to this paper. I knew the essayist would have a treat for us. That was my chief reason for coming to this room when I did.

The question has been forced upon my mind as to whether it is really a good thing to hold these Congresses in connection with great expositions. The question is, "What are we here for?" Are we here purely for entertainment or for intellectual advancement? I have listened to a number of papers—I am afraid this is off the subject, however—that I would be perfectly willing to travel hundreds, yes, thousands, of miles to hear, and have found audiences Oh! so small. I intended to state that I shall read Dr. Newkirk's paper to our senior class this winter. (Applause.) There is only one thought, however, in connection with that. I am ashamed, and I dislike to own and acknowledge to the senior class, that dentists and dental students are not better students than they are. I do not like to encourage that thought among them; if they have not the idea I do not want to give it to them. But there is much in that paper that I do want to read to them, and possibly with some slight omissions, I shall read it to them.

I want to repeat, it has been a great pleasure and privilege to listen to this splendid paper.

Dr. L. L. Barber. It seems to me that if many of the people attending this convention could have heard that paper they would have thought a great deal as an Irishman once did. An Irishman was walking along the street and out of the window in front of him came another Irishman head first on the sidewalk. "Mike, is that you?" "Sure, it is me!" "What is the matter with you?" "Those fellows inside there just beat me up and threw me out the window." Pat said: "I will go in and fix them." He went in and saw a big Irishman. "Did you hit my friend?" "I did, what are you going to do about it?" Pat said: "You hit him an awful belt, didn't you?" That is the way with Dr. Newkirk's paper. I have heard a great many papers here and it seems to me that Dr. Newkirk's paper had as much in it as any paper that will be presented to this convention. I have a paper before this section this morning and will touch a little more on some of the points he has already mentioned.

The Chairman. We have with us this morning a gentleman who has one of the finest libraries it has been my pleasure to see. I take pleasure in calling on Dr. L. E. Custer, of Dayton, Ohio.

Dr. Custer. Reference has been made to the small audience at this meeting, but that is what we contract for when we have a congress at an exposition. It makes no difference how valuable a paper may be, there are too many outside attractions, and I consider this a good audience under the conditions.

As regards the subject of the paper I thoroughly agree with the doctor in this point, that the student during his college course has not impressed upon him the necessity of building up a library. In my own case I do not try to keep everything in my mind. I will take a book, go through it, not reading page by page, but I get a general idea of the contents. I know where it is in my library, and when occasion arises I can go there as I would go to a place of reference. I do not use my mind as a sort of garret to store away everything in the world, but I use it as an index case by having material along the walls to put my finger on the subject in a few minutes. That is how I have accumulated what little I have of dental knowledge.

It is true we do not read the dental journals as we should. I am guilty of glancing over them as much as any one. I glance over and select articles that appeal to me. It is seldom I read an article through entirely.

Dr. Newkirk, (Closing.) Really there is not anything to discuss. The remarks have all been so kind. As I think the statements have been right to the point, and as they will be published they will constitute a valuable addition. I think there is hardly anything for me to add. Having said all I had to say in the paper, I will add no more.

The Chairman. The next paper on the program is by Mr. C. W. Dickey, an architect, of Oakland, California, entitled "An Office Building for Dentists."*

Mr. Dickey. Mr. Chairman, Ladies and Gentlemen: Before reading this paper I want to explain that I am discussing this as an architect, which means that I am employed by the owner to put up a building, and my first consideration must be his pocketbook. To make his a profitable building. I also have to satisfy the tenants going into the building, and I have to understand the requirements of the dentist as a tenant, and I am trying to present here a paper that will show how this can be done, how the dentist can be satisfied and the owner satisfied at the same time.

Mr. Dickey here read his paper.

*See Vol. II. Page 448.

Discussion of Mr. Dickey's Paper.

Dr. L. E. Custer, Dayton, Ohio.

While we all appreciate this paper and the work of Mr. Dickey, I feel this would appeal to architects more than to the dentists. I have been made so burning mad at home; after a man has built his building, he asks me to be a tenant. I find partitions where they should not be, and he finds he has to put in gas for me, and compressed air and electricity; then we both fly up. That has been the situation. As I said before the landlord and tenant should get in touch with one another at the time of the construction of the building. When this paper appears in the transaction, I shall take it to the best builder in Dayton and see that he uses it thereafter.

Dr. Jones.

I have had a little experience in my own office. I am just having finished a new office in a new building in San Diego. I was fortunate enough to select the building when it was going up and had space, but unfortunately did not have enough influence for the landlord to put in the partitions, as I wanted them. We met half way, and I paid for half. My results were very happy however, large apartments with plenty of space. On account of the expense in rent I utilized my space. My operating rooms are about 8x10 and I have all the room I need. I like the small operating room better than large rooms. I can reach handily anything I need and have room for an assistant, but not much for chairs and patient's friends, sisters or mothers, who therefore return to the waiting room and wait until the work is done. I think the small operating rooms are helpful indeed.

The Chairman.

I shall endeavor to stimulate some one with means after my return to my home city to put up an office building in our city in keeping with some of the buildings in the West. I had the pleasure of visiting Dr. Jones's office during his absence, and he has a very beautiful arrangement. I also had the pleasure of visiting a gentleman's office in Pasadena, and he has an ideal office plan, the rooms of Dr. Geo. C. Sharpe. I have seen so many well arranged offices in this section of the country that I am not at all surprised that this program included a paper by an architect.

Mr. Dickey.

In closing there is really only one thing I want to speak of, something Dr. Pease was going to bring out if he had been here. That is a matter of the selection of an office building for dentists. The dentist not only needs north light, but should be free from reflection of

buildings across the street. A white building opposite is as bad as an exposure towards the south. Then there must be a pleasing outlook; it is not pleasant to look out on back yards in a tenement district. Dr. Pease and I have figured a good deal on the subject and find precious few lots suitable for the purpose. They must be centrally located, have the right exposure, close to the shopping district and close to the car lines.

Dr. L. L. Barber here read his paper entitled "What Shall be the Preliminary Educational Qualification for Entrance to Dental Colleges?"*

The Chairman. Dr. Herbert C. Miller of Portland Oregon will open the discussion.

Discussion of Dr. Barber's Paper.

Dr. Herbert C. Miller, Portland, Ore. Mr. Chairman, Ladies and Gentlemen: It is not unreasonable to suppose that I was asked to discuss this paper for the reason that my occupation is chiefly that of conducting a dental college, and it was supposed that I am in position to know something of what the preparation of students should be, before admitting them to dental colleges. I have been unable to find any new recommendations in this paper, and I take it the essayist would have us infer that there is no uniform standard of requirements for admission to dental colleges.

He has suggested some of the recommendations made and adopted by the College Faculties' Association and the Dental Educational Council of America. First, the preliminary educational qualifications for entrance to dental colleges shall be high school graduation or an equivalent education; and second, applicants short of this requirement shall not be admitted upon condition that they make up this deficiency.

It is a matter of record that requirements for admission to dental colleges have been increasing for the past thirty years, beginning with no special requirement and advancing to the present standard of high school graduation or its equivalent, fifteen units or thirty credits. But dental colleges have been admitting students who were short of this requirement, upon condition that they would make up the deficiency before receiving advanced standing, or before graduation.

In the main this practice has proven to be unsatisfactory and

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*See Vol. II. Page 428.

undesirable and beginning with the session of 1915 many dental colleges will not accept students short of the standard requirement, and it has been agreed that with possibly the exception of colleges located in some of the Southern States, students will not be received conditionally carrying more than one unit to make up.

I agree with the essayist that there is no logical argument that can be adduced against laying a good foundation before beginning the special training in dentistry, and the broader this foundation is the better.

The essayist says some students with good preliminary education may come out of a good dental college very poorly equipped to practice dentistry. I challenge this statement. The student with the application, ambition and the energy to secure a good preliminary education is not likely to make a poor showing in a good dental school. He also states that some who have poor entrance qualifications, may come out of a very poor dental college very well equipped. I believe in these cases the students possess something more important to them than units of credit or diplomas of graduation from secondary schools.

Units of credit or certificates of graduation from our present high or secondary schools, and even college training before entrance to our dental schools, is no assurance that the applicant has been sufficiently prepared. I have observed and studied students who had college training before beginning the study of dentistry and who became less creditable members of our profession than some who found hardships in making up high school credits, with which they were conditioned upon entering the dental school.

I believe the preliminary educational requirement for admission to dental colleges of America has been settled for the present upon the basis of fifteen units of training as the minimum standard. While I regard this secondary school training as essential, and a liberal arts training as desirable, there is something more important to the prospective dental student, and without which he will not be a success and will not become a creditable member of our profession.

Requirements for Successful Study of Dentistry.

As the most important requirements to succeed as a dental student I will place first, the habit of industry. Second I place honesty and sincerity of purpose; and third, high ideals. Without these qualities the student will not become a creditable dentist. Lack of industry breeds dishonesty. If the student has not acquired the habit of industry and has not developed honesty and sincerity of purpose as a part of the academic training, he should be

prevented from entering our colleges of dentistry. We want our students to possess high ideals, and to be filled with enthusiasm.

Standards for Teachers.

The essayist states that some attention should be paid to the character of those who are teaching as well as those pursuing education. I think the teachers are of first importance to any educational institution. They should not only be able to direct their students and impart knowledge, but they should be inspiring examples, filled with enthusiasm, possessing high ideals. Without such instructors the student is robbed of much that is essential to his welfare and development, and the profession is dwarfed by the addition of mediocre members who possess low ideals.

The essayist says many persons are entering the dental profession who lack something that is highly, vitally important. I say to you they have not acquired the habit of industry and have not developed honesty and sincerity of purpose before entering the dental college. If the habit of industry is not acquired before the age of twenty-one is reached, there is little hope of the individual ever becoming a useful member of society. Having acquired industrious habits and possessing honesty and sincerity of purpose, it rests with the dental colleges, it is the duty of their teachers to direct and lead the students upon the highest planes; to inspire them with high ideals and fill them with enthusiasm.

The essayist stated that a boy may go to school to learn to make a living, but he does not go to college for that purpose. I say a boy does go to school to learn how to make a living, and he goes to college to prepare to make a better living, and become a more useful member of society. He also stated that the entrance requirements as given in some of the college announcements seem to be on a par with some of the statutes of many of the states, not written to be lived up to, but intended to be broken. This should not be; turn on the light and let us all co-operate in putting such institutions out of business.

State Universities Not Necessarily the Best Schools.

I believe the essayist places too much importance upon our state universities. He is taking them too seriously. Some of our states are fortunate in possessing among their political leaders men of broad education, having a keen appreciation and high ideals. Such men are powerful factors for advancement in their states; they realize the value of true education, and know that advancement and lasting prosperity of their people is de-

pendent upon knowledge, and when their constituents become fully alive to this fact, they provide liberally and give loyal support.

I am looking forward hopefully to the time when our State and Federal governments will provide all higher education that is advantageous to our people. But until our state universities can be removed from the blighting influences of poorly educated and unappreciative politicians, I hope there will be a sufficient number of loyal, patriotic citizens, possessing high ideals, who will create and maintain educational institutions, making object lessons of them until such time when our states are ready and capable of assuming the obligation.

The Chairman. Dr. Holbrook of Portland, Oregon, was assigned as second discusser, but Dr. J. C. Jones of Portland, Oregon, will substitute for Dr. Holbrook. Is Dr. Jones present? He is not present. The paper is open for general discussion.

Dr. Jones. One Jones is as good as another. I will say a few words, because as a member of the Board of Examiners of this state I am vitally interested in this subject.

In this state, and no doubt it is true in others, often we find we have to examine papers, in which the orthography is such that oftentimes we do not know what the writers mean. The spelling in a number of papers which come from middle aged men and elderly men from the East and men just out of school, is of such character that it is a shame and disgrace that such poorly educated men could be graduated from a college. California is having that experience. I have been on the Board only two and a half years but I have been so angry as to absolutely refuse to permit a man to pass who cannot spell common words. How can they get into a college when they cannot spell the simplest words? I am the butt of our Board—I fuss so much about these things. A man who cannot spell should not be allowed to become a professional man.

J. C. Jones, Portland, Ore. It strikes me that all dentists will surely agree that the very modest requirement of a high school education, or its equivalent, as suggested by Dr. Barber, is a none too high requirement. Contrary opinion reminds me of school days, when so many complained of the exactions in chemistry, histology and bacteriology, as being unnecessary for the placing of good fillings, but I am sure that almost without exception the men who did not try to get the most possible out of every study have since wished

that they had, and all realize the need of a longer and more thorough and exacting course in the dental colleges.

As dentists, we are constantly in touch with broadly educated people, and if we are to be equal to our fellow man, we also must be broadly educated.

I note in a recent report of the Ohio State Board of Dental Examiners, and concurred in by members of other boards, who are in a position to judge, that the large percentage of failures before state boards is due to a lack of sufficient preliminary education. There should be some method of examination that will allow a self-educated person the privilege of entering dental schools, as we have many so-called geniuses, who have gained their knowledge through countless hours of heartbreaking home study, who could not otherwise secure a high school education. Many of these develop a high degree of technical skill, and when broadened with the other essential training, make the best of dentists. I would suggest an examination before a bona-fide Superintendent of Public Instruction.

Medical Degree Not Necessary in Dentistry.

There seem to be some who hold the theory that as we are a branch of medicine we should secure a medical degree as a preliminary education. This strikes me as absurd, as it would be about as useless as an LL.D. degree. But we do need more of what we get. The three-year course gives us only a smattering of some subjects, which we should go into deeply and understand thoroughly, such as chemistry, histology, bacteriology, surgery, etc. A four-year course would give the dentist time to study these subjects as deeply as do the medical men, and we would then be outside of the criticism of the medical profession, which some seem to fear. As to their criticism, mentioned by Dr. Barber, I would like to suggest that the members of the medical profession stop extracting teeth, treating pyorrhoea, and treating various systemic disturbances without even looking into the mouth for a possible cause of the trouble.

Too much or too broad an education is not possible. Young people generally find the process of education irksome, and it seems to be human nature to try to slide through along the lines of least resistance. They realize the loss when they are older and it is too late. Therefore, the dental school being frequently a department of a university, the standard should be sufficiently high to admit one to any other branch of the university.

There is no question but that the man with a good preliminary education is broader and may more easily grasp the subjects presented.

Dr. Barber suggests the field of the psychologist. The psychologist

might go further and determine those particular requirements of honesty, earnestness, stick-to-itive-ness, and undeveloped technical skill, which are necessary qualities to be a successful dentist.

Dr. Custer. Dr. Miller made a statement that a collegiate preparation is not the essential thing in the selection of a dental student. Would he prefer a student of great energy and a man who would take advantage of all the facilities of the college, to one having a collegiate course?

Dr. Miller No, I appreciate the college training and desire it, but in addition he must have the other qualifications.

Dr. Custer. There are to my mind two advantages in a college preparation. One is, the student more readily grasps the questions put before him, and the other is, that after graduation, having spent so much time in study, he will not prostitute his profession and become an advertising dentist.

Dr. Barber. I spoke of that in the paper. In all my experience I do not know of a single man of that type becoming an advertising quack dentist; but I believe if the collegiate man should adopt such a course of life he will make a more successful one by reason of his study, by reason of his good education beforehand and would make a better man.

Dr. Newkirk. Just two or three things; I shall be very brief. First, do the colleges pay sufficient attention to the moral character and stamina of the members of the teaching force? No man should occupy a professorship or lectureship, or any position on the teaching staff, whose personal influence on the student may be questionable or bad, no matter what his ability may be otherwise as a teacher. If his personal influence is not going to be good he should have no position in that school. That is a matter of great importance and not sufficiently considered.

In Southern California we had a school organized on a commercial basis as a stock company for profit. By strenuous effort we succeeded in eliminating that and reorganized that school on a purely educational basis, so that nobody can make anything out of it except his pay as a teacher, and the rest goes for equipment for the benefit of the student. It is a purely educational school in its scope and purpose. And I am not intimating that other schools otherwise organized, commercial schools, so to speak, have not done a great deal of good, done good work, by the good fortune of having at their head such men as Brophy and Miller and others I might mention. But that has not always been the case, and some schools have been a positive disgrace to the profession in the

United States. That may or may not lead to the state university school, but will lead to a reformation that is very much needed.

The Chairman. Any further discussion? If not, I will call on Dr. Barber to close the discussion.

Dr. Barber. I have not very much to say, Mr. Chairman. I think the gentlemen who have spoken thoroughly agree with me.

I am satisfied there are colleges teaching dental students who do not care whether they get the best out of the course. I know there are many teaching who do not place the importance on the future conduct of the graduates which they should. How many times do you go into a young man's office and see things he is doing and hear things he is saying, and if comment is made he says: "They never told me a thing about it in the college." It is a common thing, I believe, that the majority of the colleges are making an honest endeavor to do the very best that they can possibly do. We ought to help them to do it.

Dr. Miller spoke about the high schools. I do not claim that a diploma from a recognized high school necessarily proves a student to be better than some individual who does not have one, but we must have some definite standard.

Dr. Newkirk spoke about the commercial schools. I am satisfied that there are schools existing in this country today that are not classed as commercial schools, whose professors will go out and yell: "Ethics! Ethics!" and go home and get students by any and every means. And every man who is in college work, honest work and deserving, knows this is true. I have no doubt Dr. Miller could put his finger on many of such schools. I am satisfied I could do it and I know of a man who has been in the work who could do the same thing.

The section then adjourned.

September Seventh.

Section Ten will come to order.

Dr. Brown. The first paper on the program is by Doctor G. H. Casaday, U. S. A.—"Organization and Progress of the Dental Corps of the United States Army."*

Dr. Brown. We have had a very entertaining and interesting report of the organization of the Army Dental Corps, and I will call upon Dr. Bernheim to open the discussion.

Discussion of Dr. Casaday's Paper.

Dr. Bernheim, U. S. A. Mr. President and Gentlemen: We have been particularly fortunate in having this paper written by Dr. Casaday, inasmuch as Dr. Casaday has had the opportunity of serving for some years with two of the men who organized the Dental Corps, after its authorization by Congress,—Dr. John S. Marshall, now retired, and Dr. Robert T. Oliver, who is the present ranking member of our Corps.

These two men were members of the original Board that conducted the examinations, and decided on the equipment for the Corps, and, as I say, Dr. Casaday has had an opportunity of finding out all about the details of the organization of the Corps through his service with these two men.

There are a number of questions that the ordinary civilian asks about the dental service. It is a service that most people know very little about. One of the questions usually asked is, "What are your duties?" "Do you operate for the enlisted men?" and, "Do you operate for the officers and their families?" and, "For whom do you operate?"

Dental Corps Service Within The United States. Originally our services were confined by law to work for officers and enlisted men. Under that law we did not do any work for officers' families or anybody but officers, and the enlisted men. Under the law of 1911 this was changed so that we were authorized and directed to give our services to all those en-

*See Vol. II. Page 392.

titled to treatment by a medical officer. That includes officers and their families, enlisted men and their families, civilian employees at the post, provided they cannot obtain treatment nearby conveniently. That is, so far as the civilian employees are concerned.

In the United States we are limited in our work to the use of the plastic materials, amalgams, cements, synthetics, plate work, vulcanized plate work, etc. There is no charge for this service at all. The Government pays the surgeon a stated salary, and the enlisted men, the officers and their families and the civilian, if he is entitled to the service, and sometimes his family, gets this service absolutely free. We are not allowed to do gold work for the enlisted men in the United States. The reason for that probably is that it would take up a good deal of our time and keep us from doing other work that is of more importance to the men. That is, it would keep us from rendering service to as many men.

Dental Corps Service in Territories.

In the Philippine Islands, or outside of the United States, the surgeon may perform any services required for the officer, or any one of his family. Outside of the enlisted men we are permitted to perform any operation that we are called upon to do. In this we are supposed to supply our own materials. Some probably will ask why we are allowed to perform this grade of service for the officer and not for the enlisted man.

The reason for that is probably that the enlisted man is more or less a temporary appendage to the Army. That is, that he may and frequently does, in fact, go out after one enlistment and engages in some sort of civilian work; whereas it is presumed the officer will be permanently in the service, and it is expected the best and most permanent class of work will be done for him, inasmuch as it is a saving to the Government to do that. If we do temporary work, of course we will have to do it over again, and good materials will last longer. That accounts for our doing every class of work for the officer and not for the enlisted man in the United States.

Dental Treatment Obligatory.

Then it is frequently asked "Must a man report for dental treatment?" "Must he have dental work there if he does not desire to have it done?" He must report for treatment, and I will state that there are a number of recruiting central stations in the United States and all men, before they are enlisted, are sent to the dental surgeon for examination, sometimes immediately before, and sometimes immediately afterwards. These men it is expected the dental surgeon will put into the best condition possible in

the time at his disposal, so as to send them out to their posts in fair shape, at least, so that they will not be troubled with dental affections before some other dental surgeon can render treatment.

Originally we found that very frequently it was necessary to have men ordered to the dental surgeons' offices for treatment, the Corps being new and the services they were to render not being understood; the men were afraid if they went to the dental surgeon's office and he found a cavity or something a little wrong, that he would extract that tooth. But after a year or two the men learned that we were there to conserve their teeth and not to destroy nor extract them, and it has been my experience, and I think the experience of the majority of the Corps, that we do not have to send for men any more. They come in greater numbers than we can handle.

Our object is the same as that of any civilian practitioner—to save all the teeth we can, and at the same time put the men in such condition that they can render proper service to the Government. That is what the Government employs us for, of course. It employs us for economic reasons, and we try to render justice to the Government. At the same time we feel that we are professional men and we want to render justice to our profession, so that we save as many teeth as we can.

Statutes of Dental Corps Members.

Another question that is asked is: "Do you men have to go on the firing line in the field?" "Are you soldiers, doctors, or what are you?"

We have but very little to do with the military side of the Army. We do serve on court-martials and boards of inquiry sometimes, though not frequently, but our services are almost entirely professional. In the case of field service the regulations state that the dental surgeon will be stationed at the base hospital. As a matter of fact we would probably be found in the trenches. A great deal of the warfare of today is trench warfare, and it is probable that some of the dental surgeons, at least, would have to be in the trenches, to be right on the firing line, in order to prevent the men having trouble from some dental lesion going to the hospital; but we have no actual military service,—possibly less so than the medical officer would have. He is likely to be nearer the firing line than we would be.

Examination for Dental Corps.

Now, as to our examinations: Dr. Casaday has spoken of that. We had a great many men come before our boards originally (and some still, but in the early days more particularly) men who thought it was a mere political position; and they would come be-

fore the Board with two or three letters from Congressmen or Senators; men who were unable to get along in civil practice, who thought the Army would be an easy berth, and if they could get a little political influence they could get an appointment. That was not, of course, the idea of the men on the examining boards. Consequently, a large majority of the first comers failed.

We have a large number of failures now, but possibly not quite so large as originally, because this class of practitioner has learned that that is not what the examinations are; that they are fair and just and that we are trying to get the best men we can into the service.

We think that the service represents the profession. It is practically the only Federal or National representation that the profession has, and our intention is to keep it the very best that we can, so that the profession will be proud of it. We are trying to form our corps and service so that the profession will not be ashamed of us, and we are trying not to take anyone into the corps who does not come up to the standard.

The honor and the uplift of the profession is the main aim in our minds and in our hearts and I want to say for all that I know of the Corps, and all the members of the Corps, that they are doing the best work they know how, professionally, to do. They are doing their little to help raise the status of the Corps, and we ask the profession to stand behind us in our efforts and give us the best men that they can to come before us.

I thank you. (Applause.)

Dr. Oliver. I did not hear all the paper, but what I did hear I was very much pleased with, because it covers very exactly the conditions of the Corps, both at the time of its organization and throughout its development thereafter.

I had the pleasure of serving on the first board, which convened on the seventeenth or eighteenth of February, 1901. It was our endeavor at that time to maintain the highest status of dentistry that we knew of, by making the candidates coming into the service qualify at a high standard. We took up the matter very conservatively and decided that it must be necessary for dental surgeons coming into the army to equal men of the various other professions who come to the army, in so far as their basic education and their scientific attainments were concerned.

We did not want it possible for anyone to point the finger of scorn at any army dental surgeon and say: "There is a dentist coming into the army with no education. He does not compare with men graduating from West Point in the profession of arms. He cannot compare with the

medical men coming in, nor the men from the law, nor the chaplains." So we attempted to put in a high class of men, and I am pleased to say the first twenty-eight men coming into the service passed these requirements, and we do have men of a high class among us. Their records from that time to this prove that we are not making a mistake in establishing a high standard of qualification.

Since that time that qualification has become, of necessity, somewhat lower, as Dr. Casaday has said. The men who have come in under that lower classification have not been in long enough for us to determine exactly whether they measure up precisely with the first ones or not, but from the fact that we have had six men who have terminated their service with the army, we are led to believe that perhaps the men coming in under that lower standard of qualification have not perhaps, as a whole, equalled those of the first standard, and I regret that the lowering has ever taken place. All of us regret it, and we will be glad when we get back to the original status. We hope to do this.

Condition in The Philippines.

We found when the Corps first went to the Philippines that the army had never practically received dental treatment. Our records show there were between eighty and ninety per cent. requiring dental attention.

At that time there was a big army in the Philippine Island, perhaps eighty thousand stationed there at that time, and here was a little band of dentists at first of twelve, afterwards raised to twenty-one. To jump into that field, twelve dental surgeons with this enormous amount of people, trying to relieve eighty to eighty-five per cent. of eighty thousand men, seemed appalling. It was almost an impossibility. The records for the first three years over there are beautiful records. Thousands and thousands of cases were treated. I have that entire data at home, and had I known I was to discuss this paper I would have brought it here this morning; but it is a record of which the entire dental profession of the world can be proud.

Higher Rank Needed

What we need at the present time to develop dentistry in the service is more legislation. We need a status in which there are three or more grades and ranks. We need that primarily, to attract the better class of young men to come into the service and make it their life's work. There is nothing now to attract the better class of men. Some of the men can stay out and make more in three months than we can earn in the army in a year. But we want to make it attractive, so that they will come in and make it their life's work and help to elevate the status of the profession of dentistry in the Government service.

Class of Service Rendered.

The class of professional service rendered h been beautifully outlined by both of these gentleme:. who preceded me; that rendered the officers being necessarily of a permanent character, because they are practically permanent fixtures in the army. The highest service is rendered to them: Crowns and bridgework, inlays, etc.

For the enlisted man the attempt is made to keep him in condition during the period of his enlistment. He belongs to the Government only during that time, but we relieve him of pain or discomfort and restore him the teeth that he has lost; but we use the plastics in doing it. I do not mean that the plastics will always last three years, but he is kept in good condition with the materials furnished by the Government.

The class of dentistry that we render the Government, the soldiers and the officers is, as far as it goes, strictly first-class and up-to-date. The conduct of our practice is so entirely different from the conduct of the practitioner in civil life that sometimes it really does not look like dentistry. In the first place we have a class of men as patients who are supposed to be physically perfect when they come. We have no cripples applying for enlistment and no sick people, unless they are occasionally taken sick after enlistment; and we have not, as in the private practice, hysterical people coming in and talking about how much you are going to hurt them and occasionally one of them fainting and things of that sort. We do not have to build up a practice. We have more ready-made practice than we can care for.

I had a friend visiting me for a few days. He remarked: "A soldier comes in and reports for treatment. You say, 'Sit down and open your mouth,' and you proceed to do what is necessary for him. He is not *invited* to open his mouth; he is *told* to open it, and he opens it." That is true also in the conduct of practice at West Point. There is a wonderful *esprit de corps* among the cadets. They are there only about three months when they learn all the conditions of the Academy, and they learn to obey absolutely and instantaneously, and they learn also never to make a manifestation of fear or pain.

I have seen cadets in my chair with tears trickling down the outside corners of their eyes smile at me and say it had not hurt them at all, when I knew I had nearly killed them. That does not prevail throughout the United States Army entirely, because occasionally a strapping soldier comes in and when it hurts he says a few things; they may be whispered under his breath, but you know exactly what he is talking about. (Laughter.)

But we can expedite the filling of teeth under those conditions, where

it would be absolutely impossible for you gentlemen in civil life. You are compelled to consider painlessness to the patient first.

I do not mean to say that we conduct a painful practice, because we have instruments and methods for minimizing pain, and our practice is up-to-date practice.

Asepsis in the Army.

One of the things that we do specialize in is the care and sterilization of our instruments and our hands and of every appliance that comes in contact with the patient. That is of primary importance. We have two sets of instruments and trays. As soon as one patient is finished the tray is lifted away with instruments, put into the steam sterilizer and the tray comes back in good, clean condition and the instruments are put back into the cabinet. In the meantime we have another tray provided with the instruments that we require. In that way everything is kept clean and sterile. Antiseptic mouth washes are used all the time during operations, instead of plain water.

There are many other little things that could be explained to you, but I think it is unnecessary to show the exact method by which I claim we carry on an up-to-date practice.

I thank you very much and congratulate Dr. Casaday on his paper. (Applause.)

Dr. Casaday.

Since this paper was written we have had an examination in the Philippines for commissioned men, having been in three years. Seven took the examination and two were disqualified. Last Spring (since this was written) we had an examination at the five stations in the United States, mentioned in the paper. Twenty-three applied for entrance to the Corps and two of them were successful.

The next paper is "Dentistry at Penal Institutions,"* by Dr. F. W. Simonton, San Francisco.

Discussion of Dr. Simonton's Paper.

Dr. Cline, Portland, Ore.

I have had a little experience as a member of the Board of Dental Examiners of Oregon, where we, like Dr. Simonton, conduct our examinations in the penitentiary, and Dr. Simonton's descriptions have been accurate.

Gov. West, several years ago, suggested the possibility of the Board's holding its state examination in the penitentiary and we hold our June meetings there, but not our Fall meetings. Our average

*See Vol. II., Page 400.

number of licensed dentists from the State of Oregon in the Spring meetings are in the neighborhood of fifty to fifty-five, and during the number of years that we have met there, I think some four or five times, we spent three days in actual practice—and we accomplished in the neighborhood of two thousand dollars to twenty-five hundred dollars worth of work.

I recall a prisoner condemned to die—to be hung. I think the time of his execution was set within two weeks. He had a tooth in rather a dilapidated shape, at one of our meetings and that little Italian would not let it be extracted. I asked why and he said, "I want to save it. I may be pardoned." Two weeks afterward he was dead.

Dr. J. Boyd Gordon, Salt Lake City.

Mr. President, since I first noticed this paper on the program I have been very much interested, owing to the fact that I do work at the Utah State Prison. However, it is not done by appointment, as last winter, at our State Legislature, we tried to get a Bill through the State Legislature, having a definite appointment to do work at our State institutions, as the State of California has at this time, but the Bill failed.

I have been doing the work at the Utah State Prison, for about four years. The warden, being a friend of mine. asked me to do the work. I told him I would be very glad to try.

The way they pay is a follows: if a man has an aching tooth and wants to get it extracted, the State pays for the extracting and pays me for the visit. All the plates, crowns, and bridges the men pay for individually, just as anyone would pay. Of course I make a reduction on the work that I do for these men, because I know it is hard for these men to get money. They make trinkets to sell to outside people, make bridles to send to their friends, some of which are raffled off, etc.; and that is the only way by which they can get any money, and I will add, in the yearly examinations, we do our operative work at the Utah State Prison. If the inmates have the money they let me do it, but if they have not the money they will take a chance with the students coming up for examination. We have had quite a little fun over some of the work that has been done; but the majority of the work has been very satisfactory.

I have to furnish my own equipment. I have an equipment and foot engine and about all the things I carry back and forth are the smaller instruments and my forceps.

My principal assistant has been there for fifteen years. He murdered a man in a gambling house and is there for life. He was tried, convicted and sentenced to death. About twelve years ago,

I think it was, they had an outbreak at this prison. Quite a number of the convicts got out and a number of the guards were injured. One of the convicts shot one of the guards. He did not kill him but he had the gun ready to blow his brains out and this man, my assistant, prevented him. He then escaped with the others but was shot in the arm. He was gone for five or six days and he came near losing his arm. They finally caught him and brought him back; then his sentence was commuted to life imprisonment, because of his saving the guard's life.

In regard to speaking a kind word to these men, I think that is one of the best things we can do. I know I have worked for some of the most desperate men that have been in this western country. They are all human; just as much so as we are, and they all appreciate our speaking a kind word to them.

The gentleman from Oregon spoke about the fellow that wanted his tooth saved. About two years ago there was a man who was sentenced to be shot in about three weeks, and he had a very bad abscessed tooth. His face was swollen and the guard brought him to me. He wanted the tooth treated. I told him I would not attempt to treat a tooth like that, that it was too bad. He said, "Doc, I don't want it extracted. Save it." I said, "What for?" He said, "I may get out of here. I will want it when I get out." That man was shot three weeks afterwards. Just the same valuation of a tooth that we had with the Oregon man.

Dr. Simonton

There are a number of gentlemen in San Francisco who have given their services free. I remember a little incident where one doctor told me he thought it was a fine thing to be acquainted with the prisoners out there, as many of them came to your office afterwards. Then he thought a minute and said: "Yes, and most of the time they come for a 'touch,' too." I have never had a single individual 'touch' me for anything. I don't know whether they thought I didn't have anything or whether they were afraid I would 'touch' them first, but very often they have wished to take me out and entertain me.

It is very peculiar how the courage of men differs. A man at San Quentin at one time had a badly abscessed tooth and was about to have an extraction, when he suddenly got up and said: "No, I won't do it. I can't stand it." Later on, when he was about to be executed he coolly walked up on the bridge and stood there without a sign of fear.

The gentleman from Oregon spoke about the courage exhibited by their prisoners. Many of these 'long-haired reformers' tell us that a bad man is a coward. Personally I have seen instances of bravery in

those men which I have never seen duplicated. At one time a surgeon performed a lumbar puncture, and I saw a prisoner being operated on for hernia in which no anesthetic had been administered, and he lay there and watched the doctors work. There was a man sentenced for holding up a train and killing one of the conductors—this same man who was operated on for a rupture—and the warden said to him the day before he died: "I want to see you die game tomorrow." He said, "I will do it." He was one of the gamest men that ever went through the trap.

In regard to being kind to the men: I have always seemed to have the faculty of getting along very well with criminals and the insane. I can honestly say that I like those fellows very much indeed, and at times when I go over to visit the prison I meet a good many of my old friends, and I am glad to see them and I hope they are to see me.

I would be very happy indeed to go back and take up the work where I laid it down if there were not other things that attract me at the present time, but I think the people should look to that institution for statistics of great scientific value. I think my successor could do a great work if he directs it in the proper manner. Our clientele are there and will be for many years, as a rule, and you can watch the effects of treatment.

The next paper was read by Dr. E. S. McCord, of Seattle, Washington, entitled "Dental Society Organization."*

Discussion of Dr. McCord's Paper.

Dr. C. E. Rice, Los Angeles.

Mr. President: I came into the room as the essayist was finishing. It is a subject that I have been especially interested in for some years, and I think it is one of the most important subjects that the profession can discuss.

We have our troubles in dental organizations. Often we have small audiences. In such cases we certainly have not reached the men. Men who think, who have had experience, who have had some successes, who devote their time to a paper, should receive more consideration.

We are in a Congress that has been well organized, that has been very successful. The largest meeting of this kind that has been held in the West, and probably in the history of dental organizations. I understand the attendance has been large, and yet we have heard from time to time some criticism as to the management, due to the fact that it was large and unwieldy, and this merely proves the fact that there are problems still to be solved.

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*See Vol. II. Page 407.

Dr. Homer C. Brown. I feel that a paper of this kind is in order and has been in order for the past few years. The fact is I have written several papers on this subject myself. In the past several years I have devoted much time and energy to dental organizations. A few years ago, while President of our State Society, we adopted a new constitution and by-laws, which went into effect immediately, and it was along the plan which we are operating under at this time.

At that time we were having from a hundred and fifty to two hundred and twenty-five members paying dues, and we made a rule that only those who paid dues and contributed to the organization were worthy of being called "members." The new plan was adopted and we now have twelve hundred and fifty paying dues, and that occurred only a few years ago.

When I was elected Corresponding Secretary of the National Dental Association we had seven hundred to eight hundred members, and it ran along so until the reorganization of the National was effected. Now we have more than fifteen thousand members.

I was Secretary of the Reorganization Committee and I know the many difficulties which confronted us, and I know the many criticisms that came to us from all sections of the country, and I think one of the most important factors responsible for our adjourning our National meeting for this year and meeting on the Coast with you in this wonderful Congress was the fact that we wanted to stimulate you men of the Western States and develop an interest in our National organization.

The Western men have no farther to travel in going East than the Eastern men have to travel in coming West, but I think western people are accustomed to longer traveling than we Eastern people, and it seems longer for the men from the East to come to the West than for the men from the West to go to the East. It is not to be expected when we meet in the extreme West that many men from the extreme East will be present, nor is it to be expected that when we meet in the East many men from the extreme West will be present. However, you, in your component societies have a voice in what takes place in your state organizations, and your state organizations have their say through your elected representatives to the House of Delegates in the National Association. Through this plan, and this plan only of organization, can results that are worth while be accomplished. If it had not been for the reorganization of the National Dental Association I do not think it would be possible for the Research Com-

mission of that Organization to be doing anything like the effective work that is being done at this time.

It may be a long time before another big Congress of this nature will be held in your immediate vicinity. It may be many years before the National Dental Association will ever meet upon the Western Coast; but remember that each of you has an interest, and has a voice in the workings of this organization. Remember that membership in your local society carries with it, or should carry with it, membership in the State Society, and membership in the state carries with it membership in the National, and membership in the National carries with it everything that means progressive dentistry. You can receive, and do receive the official publication of the National Dental Association; the *National Dental Journal.* While at this time it is only a quarterly, the time will come when it will be a monthly journal, and you will be in touch with the advancement of the profession throughout our entire country.

I think when the dentists appreciate the fact that they can be members of their local, their state, and their national societies and receive all the benefits of membership in these various organizations, together with the official publication,—sometimes of your state, and especially of your national society; and in many instances, the entire cost not exceeding five dollars per year, they will admit they are getting very much of value for very little expenditure.

There has been reference made to criticisms. Constructive criticism is good for the individual and it is good for the organization. Destructive criticism has no place, and that criticism which tears down and which deals entirely with the personality of individuals should receive no serious consideration.

We have listened this morning to a good deal concerning prison conditions in California, and in this I am reminded, in order to keep up this "high batting average" of my state, of a little poem that a prisoner in our institution wrote a few years ago in competition with others. This did not receive the first prize, but it did the second.

"Don't look for the flaws as you go through life,
And even should you find them,
It is wise to be kind, and sometimes blind,
And think of their virtues behind them:
The darkest night has a hint of light
Somewhere in its shadows hiding;
It is better, by far, to look for a star,
Than the spots on the sun abiding.
The River of Time moves ever along

To the bosom of God's mighty Ocean;
Don't try your force against the River's course
Or think to alter its motion;
Don't waste a curse on this universe;
Remember it lived before you;
Don't butt the storm with your puny form,
But bend and let it pass o'er you.
This world will never adjust itself
To suit your whim to the letter;
Some things *will* go wrong your whole life long;
And the sooner you know it the better.
Don't try to fight with the Infinite,
And at last go down in the wrestle;
The wisest man shapes into God's plan
As water shapes into a vessel.

(Great applause.)

The Chairman. Do you wish to say anything in closing, Dr. McCord?

Dr. McCord. I have nothing further to add, Mr. Chairman, only I wish to thank the gentlemen for their discussion.

Dr. N. S. Jenkins then read a paper entitled, "The Mission of the International Federation."*

The Chairman. The meeting of this section will be held tomorrow in Hall F, third floor. I trust you will all be present, as that meeting will close the proceedings for this section.

A motion for adjournment is now in order.

Motion made, seconded and carried.

Adjournment.

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*See Vol. II. Page 436.

September Eighth.

Dr. Homer C. Brown, Vice-chairman, called the Section to Order. We have next a paper entitled, "Development of the Dental Service in the United States Navy,"* by Dr. Emory Bryant, U. S. N., Washington, D. C. This paper will be read by Dr. W. L. Darnell, also of the Navy Dental Corps. Dr. W. L. Darnell here read Dr. Bryant's Paper.

Discussion of Dr. Bryant's Paper.

Dr. Jean Cline, Portland, Ore.

Mr. Chairman, Ladies and Gentlemen: I have listened with a great deal of interest to the reading of this paper. I have not had the pleasure of reading it in advance, but I know from what I have learned here at the Congress from the members of the Army Dental Corps, as well as from the men in the Navy Dental Corps, that the personnel of the Corps are making every effort to raise the standard of the men entering, as well as to raise the quality and standard of the services they are rendering to the enlisted men of our service.

Chairman.

Is there any further discussion of this paper?

Dr. L. G. Mitchell, Oaklahoma City.

Just one point came to my mind while Dr. Cline was speaking. It seems to me it will be difficult for us to reach a social status on a par with the medical profession in the minds of the laity, as well as the Army and Navy authorities, until the dental profession reaches that plane in reality. In the minds of the laity there is a gulf existing between the dental and medical profession. It is a humiliating thing to say and there are no doubt some men present who have reached such high eminence in our profession that they do not know this exists, but the rank and file of our profession are cognizant of it. There is a gulf between our profession and the legal profession; between our profession and the ministry. I contend that we cannot expect the recognition which we are asking for until we take the necessary steps to raise ourselves in reality; also we cannot raise ourselves in our own estimation until we raise ourselves in reality, and I believe that the best method for accomplishing that is self education. We must reach that plane where we will have the right conception of our relation to society as professional men.

*See Vol. II. Page 415.

For instance, during this meeting we have heard operations designated as "jobs." And in speaking of compensation men have used the word "price." In many cases it is a "price for the job," and not a fee for professional services. In connection with that I would like to remind you that custom and precedent is not always synonomous with progress and improvement, and the man who is willing to do only that which was done yesterday, is not paving the way for reaching that place where we can demand and expect due recognition. This is a matter of self education. A matter of taking an inventory of ourselves—of our equipment—we must decide, whether or not our attitude toward society is that of a professional man instead of that of a tooth carpenter. One of the newspapers recently facetiously spoke of our State Dental meeting as "a body of tooth carpenters," and I asked myself, "how many of the men in our State are really professional?" Does the dentist believe his service is a professional service? Until we believe that we are selling professional services, and that the compensation is a fee for an operation—not a "price for a job"—we may not hope for much progress in the direction desired. Let us educate ourselves to a correct appreciation of our relation to society as professional men and then we can hope to get the laity—to get the Army and Navy authorities and the Medical profession to look upon us as professional men. (Applause.)

Dr. Homer C. Brown, Chairman.

Dr. Mitchell has raised a very good point and discussed it quite interestingly. I am fully convinced that there is not the great gulf existing today that existed a few years ago. I am also fully convinced that through our recent development in our dental organizations we will accomplish things we have never been able to accomplish in the past. Dr. Oliver has come in the room and I will call on him to discuss this subject.

Dr. Robert O. Oliver, U. S. A.

Mr. Chairman and Gentlemen of the Section: I regret exceedingly that I failed to hear this paper in its entirety, but I heard the discussion of Dr. Mitchell. We of the Army Dental Corps, who have been in service about fifteen years and have withstood the brunt of its pioneer stages ourselves, and in a measure blazed the way for the profession in the matter of military service, feel very kindly disposed toward the Navy Dental Corps. We welcome them into the general service of the Government with open arms. We want to see progress made and development made in 1915 over the conditions we had to contend with in 1901. They have gone us one better in the matter of legislation: they have secured a better status for dentistry. Whether that is to be credited to the Army or Navy Department, or to the fact that we have perhaps

paved the way a little in advance for them to take advantage of, I am not able to say. We are glad to see this better status. We have in the public service of this Government a just recognition of dentistry in proportion to the recognition of the other professions. As Dr. Mitchell has stated, there is a gulf existing between the profession of dentistry and the status of other professions, and this is more deeply marked in the service than in civil life. You who practice in civil communities of whatever size, have a recognition practically equal to that of any other profession.

There is a reason why there is a gulf between medicine and dentistry. Dr. Mitchell has mentioned it. It is a matter of education—of fundamental education. The men in dentistry today have not had as high a degree of education fundamentally as is required of the members of the other professions. This has been a great mistake. Dentists have occupied the positions of highly trained artisans. Commercialism has been a hindrance. Methods of obtaining a greater practice—building up a larger clientele—have induced some men to adopt a grasping commercialism. Their nomenclature has been at fault too. We hear men speak of certain "jobs," "certain prices" and certain "pieces of work." I object to the word "work" as much as to "jobs" and "prices." It is not professional nor scientific.

I am happy to state that this gulf is narrowing daily. We are elevating professional dentistry every day. We are seeking higher qualifications for admission to Dental Colleges. In the Navy and Army we may be proud to state that we have passed by all idea of commercialism. We use correct terms, as we think, in stating specific cases of endeavor or operations. We get no fees, but we have "operations"; we do not have "jobs." We have "cases presented" and "operations performed," and we think we are trying, in our humble manner, to elevate the practice of dentistry. But we want coöperation and we want someone to extend the helping hand to us in the service. We do not care especially for any legislation that will benefit any special man, but we want something to give an elevating uplift to dentistry and place it at least on the status in the public service that it enjoys in civil communities.

The Chairman. Is there any further discussion?

Dr. Darnell. I do not believe I have any more to say, except that I want to verify what Drs. Oliver and Mitchell have said concerning commercialism—its absence in the service. The cases presented are, as they say, looked at professionally and not as the amount of "work" we have to do, and I know I find it a great pleasure that the fee question does not come into the matter whatsoever. Our practice is on men from seventeen years or up, and we have a practice as has been stated, where ninety per cent. of patients need dental

attention. There is scarcely any time to waste. The Navy is in the position the Army was in ten years ago and we are going to get recognized. We have no full commission. All our men are under acting appointments, on appointment by the Secretary of the Navy, and we serve for three years under probation. This Act was passed August 12, and the Act states that three years from its passage all men who have been in the Corps may come up for their examination. This year thirteen men in the Corps come up for their examination and full commission. I think the profession as a whole should help us build up the status that we are to enjoy in the Navy, that we may have social and professional rank.

Dr. Mitchell. I wish to ask for a little information. Is it possible for us to pass a resolution that will in any manner be beneficial to these departments in accomplishing what is really needed?

Dr. Homer C. Brown. That would be strictly out of order, for this is a Section only to consider papers presented before it. If you have anything in the form of a resolution to present for this Congress to act upon, it could be prepared and presented at the General Session meeting at noon today. I suggest that before you do that you confer with Dr. Platt.

Dr. Mitchell. It seems to me if we can formulate some resolution, prepare and submit it and get it acted on at this Congress, it will do good. I am not in favor of letting this opportunity pass.

Dr. Jean Cline. I believe you have the power to appoint a committee who might formulate some resolutions to be presented at the General Session at noon. I think that is within the rights of the Chairman.

Dr. Homer C. Brown. I would rule that I have no such authority. I will do this. I will entertain a motion that it is the sense of those present that a committee be appointed to formulate a resolution to be presented at the General Session at noon today, if that is the pleasure of this audience, but I feel we have no more authority than that. I will appoint the committee if it is the expressed wish of those present.

Dr. Jean Cline. I move it be the sense of this meeting that the Chairman shall appoint a committee to formulate resolutions and present them to the General Session at noon, which will have for their meaning the support by this Congress of the efforts of the Army and Navy Dental Corps to elevate themselves and to increase their efficiency and social status. (Seconded by Dr. Fortgang).

Dr. Homer C. Brown. All favoring the motion of Dr. Cline, make it known by the usual sign. (Carried.) I appoint Dr. Jean Cline, Portland, Oregon; Dr. Fortgang and Dr. Mitchell a committee to prepare this resolution and confer with the President of the Congress with reference to it.

As Chairman of the Legislative Committee of the National Dental Association I beg to advise that our committee has full authority with reference to appointing good live wires in various States, and I was very much interested in the remarks of Dr. Cline awhile ago and wish to make the announcement now that Oregon has its representative already selected in the person of Dr. Cline.

The next paper is by Dr. John T. Grant. It is entitled "The Unpardonable Sin."*

Chairman Homer C. Brown. We are indeed honored today by having a gentleman from the west, as we call it in Ohio—but from the east when we are speaking of Dr. Haskell, and Chicago on the Pacific coast. Dr. Haskell has travelled many miles to get here and we are indeed honored by his presence. I will call on him to open the discussion on Dr. Grant's paper.

Discussion of Dr. Grant's Paper.

Dr. L. P. Haskell, Chicago, Ill. Mr. Chairman and Gentlemen: I did not suppose I was to open the discussion on this paper. I do not think it can be discussed: I do not think it is open to discussion. It is a splendid paper—full of rich meat. There is nothing in it it seems to me, I could possibly take exception to. And Dr. Grant pays a splendid tribute to California; it should be published far and wide—not only in California but all over the country. In talking with Dr. Grant I happened to mention that I had been interested in the Turkish or hot air bath as a great remedial agent, and he wanted me to mention what I said to him. I have been familiar with it more than fifty years. I had a brother-in-law—a physician—and when he came out of the army at the close of the Civil War he investigated it. It is a hot air bath, and as a remedial agent I believe it is one of the greatest known to science. I have seen so much of its results in Dr. Hanson's establishment and in my personal experience with it that I have been a great advocate of it.

What is the theory of the Turkish bath, in a few words? Simply this: Where the human system is submitted to high temperatures Nature demands relief. Relief comes by evaporation of water on the surface of

*See Vol. II. Page 418.

the body. In tropical climates there is little demand for clothing. In northern climates the body is completely covered and nothing but the head is exposed to the sun, and you have the sun-stroke. Many people do not realize the difference in effect on the human system between dry and moist heat. A steam or hot water bath accomplishes good, but it is always enervating. The Turkish bath is one of the greatest tonics known to science, on the other hand. You go in a hot room, say 150 degrees, and the body is divested of clothing. Nature demands relief: the pores open! When the skin becomes inactive the kidneys have extra work to do. When the pores are opened, what results? Poisonous materials eliminate rapidly. The blood comes to the surface. This equalizes the circulation from head to foot, and thus relieves all congested conditions to an extent and in a manner that cannot be accomplished by any other method. So there are those three things accomplished which are absolutely essential to health. Elimination of poisonous materials, equalization of the circulation and relief of congestion. To accomplish much this treatment should be taken on consecutive days. I do not know of any Turkish bath sanitarium such as Dr. Hanson's was. He has passed away and his sanitarium is closed up.

Dr. Homer C. Brown.

The essayist is again honored by the next discusser, in the person of Dr. Frank L. Platt, President of this Congress.

Dr. Frank L. Platt.

Mr. Chairman, Ladies and Gentlemen: It has been my personal privilege and pleasure to know Dr. Grant for a good many years, and I was not very much surprised at the nature of his paper when he passed it to me a few days ago and asked me to read it and discuss it, or "cuss it as I pleased,"—as he said,—for he has a peculiar humor that sometimes leads him to make such remarks.

Like Dr. Haskell, I do not see much to discuss in the paper. When I read it, it did not seem very germain to a meeting of this kind, and yet it does seem proper to me to present it here, for we are all interested in hygiene, the promotion of health, the promotion of longevity. It is the purpose of our work, and any of the allied subjects it seems to me are appropos.

I have had the pleasure of being entertained in the home where, with his charming better three-quarters, Dr. Grant dispenses a fine hospitality, and I think he has a wonderful view of life up there in the hills, where he allows Nature to do pretty much as she pleases—with the birds nesting about his windows, etc. He does not interfere very much with the beautiful things Nature has provided and it occurs to me when he says in his paper, "normal organs do not need stimulating," that is quite in line with his life at home, where the normal growth of trees and flowers are not

disturbed very much. He cultivates a good garden, but he gives Nature an excellent chance, and with wonderful success.

It seems to me that, coming down to the subject of the paper—the unpardonable sin—the abuse of the natural functions—that it is the most prevalent and awful thing with which we have to contend. No one knows when that commenced: it was a long time ago undoubtedly. I believe Noah was said to have gotten drunk shortly after having left the ark. Perhaps he had an excuse after forty days at sea. (Applause.)

But I think Dr. Grant has brought to our minds some very important matters, and each one of you, if you will review your daily habits, may find the cause for most of your troubles mental, physical, financial and otherwise. This paper dealt with physical habits. I remember meeting an old gentleman, well known to many of you, Mr. Diamond. He traveled around town as a book agent. He was several hundred years old, more or less: he seemed to be able to prove he was more than one hundred. I asked him how he accounted for his wonderful vigor. He said that up to the time of the Civil War he lived as everyone else. He was wounded and became ill and had a serious time of it, and since his recovery he made it a habit never to eat or drink anything which habitually disagreed with him. He lived on fruit, vegetables and poultry and ate no meat. He never had used liquor or tobacco in any form. He was in my office one day when I was working for a man of sixty-eight years of age. This man said he had four sons-in-law and could "whip them all, beat them in a foot race and drink them under the table." He indulged in twenty-five or thirty drinks of whiskey a day and always used tobacco. He had almost worn his teeth out chewing tobacco. I introduced him to Mr. Diamond, and they had a lurid discussion. My patient said, "Diamond, you tell me you are a hundred years old and never drank whiskey nor chewed tobacco." Diamond said, "I am." The other man replied, "You poor old fool, if you had always drunk lots of whiskey and chewed lots of tobacco, you would be over two hundred!" So there is a difference in the point of view.

This paper should be commended, given our serious consideration, and published in our transactions, particularly the beautiful tribute to California with which Dr. Grant has concluded his paper. I assure you I know from experience that he has a view of life and the ability to express himself that is far above the average. I feel honored in having been asked to discuss his paper.

Dr. Harold Seager, San Francisco, Cal.

I also want to pay a tribute to Dr. Grant. Dr. Grant, unfortunately for the profession, is no longer a dentist but is a farmer, a promoter and a good fellow. His wit, or I should say, his humor, has this quality, that it hits only the foibles of human

nature. It never hits the weaknesses. He hits the foibles and foolish things and hits them hard. I think the Doctor was never very bitter in his humor, but since he has gotten up among the hills of Contra Costa County his spirit has grown sweeter and his humor more mild. I attribute that sweetening of his spirit to his coming nearer to Mother Earth, and I hope it is going to have the same effect on me. I am delving a bit in gardening and the cultivation of flowers, etc. The Chairman also is taking a little smell of his boutonniere, I notice.

Turkish Baths.

I want to reply to a point suggested by Dr. Haskell. I was fortunate—or unfortunate—enough, in the early days, to have lived in Turkey, where the Turkish bath originated, and I bear the Doctor out in his statement that it is a hot air bath. Hot air is essential, especially for the dentist. It is essential too for the physician in treating many of the troubles of the human flesh.

The Mohammedans are forbidden the use of alcohol, but they smoke inordinately—both men and women. They also are addicted to the inordinate use of coffee, of the sirupy variety. A bargain is never made in the office of a Turkish business place without having coffee and cigars brought, and the bargain talked over in that manner. The women are addicted to an excessive use of sweets and fats and live sedentary and luxurious lives. There is the reason for the Turkish bath. They have these particular forms of foibles. Our people partake of drugs, alcohol and overstimulation, but they live this sedentary injurious life, and they would not be able to live at all unless by the aid of the Turkish bath they could secure this elimination through the agency of this therapeutic measure. In other countries they have other sins and other methods. Here we eliminate by bromo-seltzer, and over there they go into a hot atmosphere and let the skin do the work.

Dr. Garret Newkirk, Pasadena.

Just one word. One word seems to express all I have to say with reference to this paper. It was in my mind while the paper was being read. This word was made somewhat famous by a recent President of the United States. It is just simply this: "Bully!"

Dr. Leland D. Jones. San Diego, Cal.

I was unfortunate not to be here to hear the first part of this paper, but I heard the end of it and enjoyed it. It seems a pity every member of the Congress could not have heard it—especially the men from the East. (Applause.)

Dr. John T. Grant, Martinez, Cal.

Mr. Chairman, Ladies and Gentlemen: I thank you. I would like to express my heartfelt appreciation for your kindly comment on what I have offered you, and in view of Dr. Haskell's "ninety years young" and the fact he is in the daily practice of dentistry, and has been for something like seventy years, I wish he would say one thing to you he said to me, and which he has overlooked. He told me he was a very puny baby and the only brother in quite a family of sisters. One sister wrote to a relative that they had a baby brother, but did not expect to raise him. (Laughter.) He also told me, I believe, he has never used tobacco or liquor, and that in spite of his acknowledged majority he never has occasion to use a laxative or cathartic, and I think that is really worth while when you consider the very remarkable history he has passed through.

I wish to tell you a story, the like of which I have heard many times. On the other side of the question you have often heard of "My Grandfather's Great Uncle, who was a puny child and they did not expect to raise him: at six years he contracted the habit of using tobacco and drank a pint of whiskey every day after twenty years of age, and when he was not using his mouth for other purposes he smoked constantly and died in perfect health at 106 years of age. He never owned a tooth brush, and every tooth was in place." I wish to tell you an experience quite near at hand. In the memory of some of you, a few years ago, at a gathering of dentists at the Palace Hotel, a gentleman past eighty years of age, stood on his chair with a goblet filled with champagne, and said, "Gentlemen, I prefer the pace that kills!"—and that man lived in quite a hale and hearty way, as I understand, to be more than ninety, and then died after slipping and falling on the ice. I was talking with a man the other day who admits he is sixty, and looks five years younger. In forty years he says he has eaten nothing but meat and potatoes and drunk coffee three times a day; he drinks alcohol many times a day and chews an unlighted cigar much of the time. Apparently he is in perfect health. I believe, however, these isolated cases of longevity where many of the follies have been persisted in for a long time, prove nothing. They remind me of the late John B. Goff. He stated his father was three days at the Battle of Gettysburg; he had his clothing pierced by bullets; he had four horses killed under him in the three days and he himself was not scratched. He said, "I have been trying all these forty years to persuade myself that that was a healthy place to be in." Those of you who saw Dr. Price's pictures the other night, showing the struggles of the micro organisms, and saw them rush across the field of the microscope and saw them strangle each other to death, will remember that in his remarks he said this struggle between

the cells of your own body and the foreign cells is going on within the body of each one of us, and he said the day will come when they will "get you!" I think that is admitted, but the point is this: if we keep our resistance normal we can probably postpone that day indefinitely. The only question is, do you love longevity more than you love to have "what you want when you want it," and that is a question each one of us must answer for himself.

Chairman Brown. There seems to have been a great many puny children. In fact, if we take Dr. Haskell to be an example, it is to be regretted there were not more puny children. They tell me I was puny but I never expect to live to see ninety years of age, for I am disposed to have what I want when I want it! I think this closes the scheduled program for this Section. Mr. President of the Congress, have you anything you wish to present here?

President Platt. Nothing more. There will be a general session of the Congress about 12 o'clock which I wish every member to attend. Some resolutions of importance are to be acted upon.

Dr. Garret Newkirk. I think we owe it to the Convention officers to attend the General Session at noon today.

Dr. L. P. Haskell, Chicago. I think we should show our appreciation of what the Committee of Organization has accomplished. This has been a grand Congress and it is the duty of every member of this Congress to be present at the meeting, and I wish action might be taken by the Congress in regard to the death of Prof. Black. To my mind Prof. G. V. Black reached a higher pinnacle of dental fame than any dentist that ever lived. He was an investigator, a scientist, a mechanical artist and an instructor. A few years ago a banquet was tendered him by the Dental Society of Chicago. There was a pamphlet containing the titles of papers and essays written by Prof. Black. There were more than five hundred of them, written on every phase of dental science. That shows the manner of man he was.

Dr. H. L. Seager, San Francisco, Cal. At the session of the General Congress will be presented resolutions on the death of Dr. Black.

Chairman Brown. The program for the section having been completed, we now stand adjourned.

Exercises at Festival Hall.

On invitation of the Directors of the Exposition the officers of the Congress, the officers of the Greek Letter Dental Fraternities and their friends were invited to meet in Festival Hall, Exposition Grounds, on September 3. The exercises attracted a large audience. The Secretary of the Congress, Dr. A. M. Flood, presided.

Dr. A. M. Flood. Ladies and Gentlemen: It becomes my very great pleasure to introduce to you Director F. L. Brown, representing President Moore and the Board of Directors of the Panama-Pacific International Exposition.

Mr. F. L. Brown. Mr. Chairman, Ladies and Gentlemen: It was my high privilege and great pleasure to welcome you at the Civic Auditorium last Monday in behalf of President Moore and our Board of Directors. I know that I thought, and I have no doubt you thought at the same time, that we were through with one another, but to-day it has been allotted to me to have the pleasure of expressing, officially, the thanks and gratitude of the President and Board of Directors of the Exposition for the splendid attendance of this Congress at the Exposition. I do not doubt that all of you would much prefer the glorious California sunshine and the beautiful vision of the Tower of Jewels and all that Nature and Art have prepared for you in the Exposition itself rather than to listen to the somewhat perfunctory remarks of a Director. Nevertheless, our President and Board of Directors have felt that these great gatherings have a very broad significance in the meaning of this Exposition, and that they should be fittingly symbolized, as in the history of this great Exposition will be recorded the fact that the great Congresses attending this Exposition are nearly four times greater in number than at any previous Exposition in the world's history. When you take into consideration the fact that San Francisco is a great distance from the centers of population of the world and remember the momentous events now happening throughout the world, you will agree with me that we of the Exposition are profoundly grateful to the Congresses and the people who make up those Congresses, for their presence within the Exposition, and for the honor

and dignity they have given to this Exposition by the holding of their Congresses and Conventions here.

It has been the custom of our Exposition to present to each visiting Congress and Convention, a bronze medal, symbolizing as it does, the work represented in this great Exposition, and you will pardon me, my friends from the East, when I say to you that California really thrills with pride at this record of achievement, in having built, alone and unaided, without any assistance from the United States Government, this magnificent tribute of the Twentieth Century to the world's progress and achievement; and the fact that this State—one of the smallest in population of any in the Union—was enabled to raise more than $20,000,000 of our own good money, all of which has gone into this Exposition. And of the fact, as I said last Monday, that while the United States Government was spending $400,000,000 in the building of the Panama Canal—the wedding of the two great oceans—"the land divided, the world united"—at the same time San Francisco was spending $400,000,000 in the rebuilding of the city loved around the world, after the greatest conflagration of all ages. (Applause.)

And so it happens that to-day, in the year 1915, the people of California wish to celebrate fittingly those two great events: the rebuilding of the City of San Francisco and the completion of the Panama Canal, and at their own expense and as a labor of love and devotion the Commonwealth of California has erected this magnificent Exposition as a tribute to the courage, character and high purpose of American manhood and American womanhood. And I trust you will bear with me and pardon me for expressing this feeling of pride to you on this day of all days, September third, 1915, which will go down in history as the "out of debt day" for the Exposition; for to-night we burn the last vestige of debt hanging over this beautiful structure, and by nine o'clock to-night this great Exposition will be free and clear of all indebtedness and will stand before the world in the unique position of having been built by the citizens of one State and one Commonwealth, and of having been the first Exposition in the world's history to have been built without any Government aid whatever and yet it stands to-night without any debt, and with its message sent broadcast throughout the world, of "Peace on Earth and Good Will to Men." (Applause.)

I know you will accept my explanation, because those of us who have toiled for the past five or six years in the building of this great Exposition have felt the enormous responsibilities that came upon us when the War was declared in Europe, and when we faced the fact that never before in the history of this Nation were business and finan-

cial conditions so unfavorable with practically all the rest of the world at war, and I venture just to tell you that last Fall one of our leading citizens came to us and asked us if we would not take the last $100,000 we had left and advertise to the world that the Exposition had been postponed for a year. But we felt that the honor of California, of San Francisco and of the United States was at stake, and as we had secured the honor of holding this Exposition from the Government at Washington on the statement that "the West always makes good," it was our duty and responsibility to open the gates of this Exposition on February 20, 1915, even though not a single person came through those gates. (Applause.)

And so it is to-day with feelings of profound gratitude and thankfulness to you and to the people of California and all the States of this Nation and other Nations that we of the Exposition Directory speak in that common language of gratitude and tell you how deeply we appreciate your presence here to-day and thank you for what each and all of you have done to render possible the building of this great Exposition and in helping us to pay off the last vestige of debt.

I have just come from a meeting of the Board of Directors at which we considered the problem of preserving for posterity as much of this beautiful picture as possible, and I want you to share in my feelings of gratitude that we of the Directory and of the Board of Managers feel for what has been accomplished. We never can properly convey our expressions of gratitude to you and to the people of this land for having helped us to make good and carry out our promise made to the American people and the world five years ago. And so, to-day, I have been authorized and requested by our President, to present, first to The Panama-Pacific Dental Congress, and then to each of the Greek Letter Societies of your Profession, a bronze medal or tablet, expressing as it does, in a symbolism wholly its own, the fact that this bronze medal represents four centuries of effort in the upbuilding of the civilization of this Western country. It represents also, and defines the fact, that the Panama Canal has been successfully accomplished, and also symbolizes the fact that the City of San Francisco has been rebuilt, and stands before the world consecrated to high purposes as the Guardian Gate of this Western country.

Possibly we overestimate the importance of this bronze tablet, but if you knew the amount of hard work and loving work and devotion that has gone into the building of this Exposition, into the rebuilding of our city, into the building of the Panama Canal, possibly you might realize and appreciate the real sentiment that underlies the high purpose in the presentation of these bronze tablets, as history will set down long after

we have all passed away the record of the stewardship the people of California have made to the people of the United States and the rest of the world. And so we ask, Mr. Chairman, that you accept this bronze tablet with our love and affection, and as expressing the deepest sentiments of gratitude for what your Congress and Convention has done for making this Exposition a success.

President Frank L. Platt.

Mr. Brown, Ladies and Gentlemen: As President of the Panama-Pacific Dental Congress, it becomes at once my duty and pleasure to accept on behalf of the Congress, this commemorative medal, the gift of the Panama-Pacific International Exposition. To my mind the ceremony in which we now participate has a peculiar significance, for it emphasizes the fact that dentistry is not only forming a part of the scientific and educational features of this Exposition, but that its value to humanity, and its many contributions to the science, art and literature of the professions devoted to the relief of suffering and to the betterment of the race, are here recognized and appreciated.

Other dental congresses have been held in this country in connection with great expositions, notably those at Chicago and St. Louis; the one at Jamestown may also be mentioned. But without disparagement of those that have gone before, and in spite of the great hindrances set in our path by this World War, I believe that I shall not be criticized for saying that this present dental congress equals, if it does not surpass, any that has preceded it on this continent.

The first Dental Society in the world was organized in August, 1840, and here in this great Hall, surrounded by Palaces, each one testifying to the artistic sense of their builders, and all filled with definite examples of man's handicraft, it seems to me we should feel highly honored that through a happy coincidence we celebrate under such auspicious circumstances, the Seventy-fifth birthday of Organized Dentistry.

With a deep sense of gratitude I accept on behalf of the Profession of Dentistry, this token of appreciation, with our sincerest thanks for the honor conferred upon us.

Chairman, A. M. Flood.

Mr. President, Ladies and Gentlemen: It is my great pleasure to state that these honors have not all been reserved for one Society, and I introduce to you Dr. R. Ottolengui, representing the Delta Sigma Delta Fraternity.

Mr. Brown.

Mr. Chairman, Ladies and Gentlemen: If we had known how many distinguished guests there were to be here to-day we certainly would have had a medal for each of you. In the absence of that possibility, and as ex-

pressing the trite old saying that "Knowledge is the only thing that increases by giving it away," it has been the wish of the Board of Directors of the Exposition to prepare these commemorative bronze medals for each of the Societies that are a component part of the Dental Profession, and so I have to-day the pleasure of presenting to the Delta Sigma Delta Fraternity this bronze tablet, expressing the gratitude and appreciation of the Exposition Directory for your presence here to-day, and for your part in having made this Exposition possible.

Dr. R. Ottolengui. Mr. Director-General, Ladies and Gentlemen: Through unfortunate and unforeseen circumstances, the Supreme Grand Master of our Fraternity is absent, and, consequently, the honor has fallen upon me to receive this medal. As you know, all Fraternities are supposed to be secret organizations, and, therefore, I cannot be more exact than to say that I receive this medal in behalf of our membership which is something less than ten thousand.

I think, also, that while it is not possible for me to explain to you in thorough detail the real purposes of our Fraternity, that I may, without any breach of trust imposed in me by my Fraternity, state that the broad and big purpose of our Fraternity, as of all other Fraternities, is not so much the betterment of our members, as it is the betterment of our members as a part of the dental profession, that they may co-operate with other Fraternities and with other professional men in delivering unto the communities in which they live the very best that can be delivered through dental service, and in that way I feel sure that the dental profession and the members, whom I particularly represent, are specially honored to be here at this great Festival and to receive this public recognition of the little service that we as a Fraternity have been able to render unto mankind, and in behalf of my Fraternity I thank you most cordially.

Chairman A. M. Flood. It is now my pleasure to introduce Dr. H. E. Friesell, representing the Psi Omega Fraternity.

Mr. Brown. Mr. Chairman, Ladies and Gentlemen: The deeper note of all these gatherings at the Exposition has been that new thought and new method which is a product of Twentieth Century service. That is the key-note which has been brought home to us of this Directory more and more by these Congresses and Conventions, and they have practically set at naught the statement that the world is growing more selfish, because the great purpose we have seen borne out in these professions, is that of service and the uplift of mankind, and I wish, Mr. Chairman, to present to the

Psi Omega Fraternity this bronze Tablet, expressive as it is of all that you are doing for the uplift of humanity and the betterment of the human race.

Dr. H. E. Friesell, Pittsburg.

Mr. Director-General, Ladies and Gentlemen: The Psi Omega Fraternity numbers something over eight thousand members of the dental profession. It extends its active Chapters from Boston to Los Angeles. It numbers sixty-eight Chapters, forty-two of which are undergraduate or College Chapters, located in practically all of the important dental schools in this country. Twenty-six graduate or Alumni Chapters are located in the principal cities of the country. For two years each one of these eight thousand members have looked forward with much pleasure to visiting the City of San Francisco and participating in the pleasures of your Panama-Pacific International Exposition. Many of them are here, and all, whether here or at home, have this day their eyes and hearts in San Francisco, because September 3rd is Psi Omega Day in the Exposition. The Psi Omega Fraternity has many objects for its fundamental principles, all of which can be summed up in the supreme one—service to humanity.

I deeply appreciate the honor of representing this large body of men in receiving this token from your Exposition, and can assure you it will be a pleasure and gratification to us to add it to the archives of the Psi Omega Fraternity.

Chairman A. M. Flood.

It is now my pleasure to introduce Dr. C. O. Simpson, of the Xi Psi Phi Fraternity.

Mr. Moore.

Mr. Chairman, Ladies and Gentlemen: This is the last presentation to-day, and I wish to express, in the fullest measure I can, the pleasure of the Exposition Directory and Management, and their appreciation of your great organization and its various Chapters, in assembling within the gates of this Jewel City. And we ask that you carry back with you to your friends in the East the message that President Taft gave us three years ago and which he expressed again yesterday, that "San Francisco knows how," and if we have made you feel that you are our honored guests in the beginning and that you leave us as friends—friends for all time to come—then we of the Exposition shall feel that our purpose has been accomplished and that you will never regret having come here to visit this Exposition, and we ask Mr. Chairman, of the Xi Psi Phi Fraternity, that you accept this medal with our deep gratitude and appreciation.

Dr. C. O. Simpson.

Director-General, Ladies and Gentlemen: It is my greatest pleasure to act as the representative of the great Xi Psi Phi Fraternity on this occasion in

accepting this token of the Exposition Management because of our small part in making up the Panama-Pacific Dental Congress and this Fraternity Day at the Exposition. As a representative of my Fraternity I wish to thank the Management and Congress for our part in participating in a small way in the proceedings of the past few days. I thank you.

Chairman A. M. Flood. Ladies and Gentlemen: It is now my pleasure to introduce to you one who may belong to one or more or all the Dental Fraternities. I do not know, but I do know he belongs to that great Fraternity, the loving brotherhood of man, and I take great pleasure in introducing one whom we all revere and love, Dr. Truman W. Brophy.

Origin, History and Effect of Dentistry.

Address by Truman W. Brophy, M.D., D.D.S., Chicago, Ill.

Mr. President, Ladies and Gentlemen of the Congress:

I received a telegram from you, Mr. President, a day or two before I left home, requesting me to deliver an address on the "Origin, History and Effect of Dentistry," from the remotest period to the present time. And you requested me to do this in fifteen minutes! Having learned of the progressive spirit characteristic of Chicagoans, you no doubt assumed that a Chicago man could with ease graphically portray to this great Congress a history of the dental world from the time of Adam to the time of Platt!

When that great Italian author, Dr. Vincenzo Guerini, whose writings have illumined the pages of dental literature, prepared a history of dentistry, he carefully examined all of the tablets, plates and writings in all languages bearing on the subject. He accumulated and published, for the first time, a great mass of evidence of the development of dentistry from the earliest period. To him I am indebted for what I may say on early dentistry.

Medicine and dentistry, according to history, had a common origin. All of the ills to which the human family was subject were, to a great extent, treated by the priesthood. Not until the time of Hippocrates, the father of medicine, was anything done scientifically to acquire an understanding of human maladies and to outline what to-day science reveals to have been a rational course of treatment.

Practice of Medicine by Priests.

The treatment employed by the priests was by no means in the interests of charity, for they were well compensated for their services, although, as today, doubtless many were unable to make any return for the services rendered. If the patient made a good recovery he regarded the priest as almost superhuman; if his condition did not improve, the priest declared his failure to recover was the will of God and that it was just punishment for misdeeds. These priests not only made sacrifices and prayers for the recovery of the sick,

but employed all the means at their command to learn of the treatments given by others, and by their predecessors, so that they compiled a code of treatment which was handed down from one priest to another and it gradually grew into a more or less systematic course.

Herodotus tells us that the Babylonians used to put their sick in public places so that passersby might comment upon the particular ailment exhibited, and if anyone had ever been similarly ill, the treatment employed in his case was suggested for the patient under observation. Thus the diseases in ancient times were treated partly by superstition, partly by observation, and the information acquired in this crude way gradually led to the marvelous achievements of the present day. Of the method just mentioned—exposing the sick to the public gaze and comment—Guerini says:

"This usage had without doubt its advantages, as it must have led, little by little, to the recognition of such remedies as were most efficacious, among all those recommended, against the various maladies.

"Another custom that served to furnish useful elements for the development of the art of medicine was that of the votive tables, hung in the temples by patients after their recovery, in sign of gratitude for having received the invoked blessings. These tables contained a brief description of the malady and of the treatment that had proved useful in dispelling it. If we reflect that dental affections are often of long duration and very tormenting, the thought naturally suggests itself that among the votive tables not a few must have referred to maladies of the teeth."

Egyptians.

From this to the time of the first king of Egypt, Menes, 3892 B. C., great progress was made in the dental art and science in Egypt. In fact, everywhere the progress of medicine and dentistry was always in proportion to the advance of civilization. The Egyptian papyri, an accumulation of valuable documents, contain many interesting formulae for the treatment of diseased teeth, among which I quote you the following:

"Finally, we have a medicament 'for curing the gnawing of the blood in the tooth' as follows:

The fruit of the gebu	Part 1/32
Onion	1/64
Cane	1/16
Dough	1/8
A-nest-plant	1/32
Water	1/2

One leaves it to stand and then chews for four days."

The filling of teeth and the making of bridges by the wiring of teeth together was known to the early Egyptians. Teeth carved from ivory were wired to the next tooth and the lost normal teeth were thus replaced.

Hebrews.

The word tooth or teeth occurs more than fifty times in the Bible, but little is taught regarding their care. The differing conditions of the teeth were significant to the Hebrews, however—integrity and soundness of teeth indicating force and vigor, and decayed or broken down teeth symbolized weakness. Mention is made several times of "teeth on edge" sensation produced by acid subtances, an instance being given in Jeremiah: "In those days they shall say no more; the fathers have eaten a sour grape, and the children's teeth are set on edge. But every one shall die for his own iniquity; every man that eateth the sour grape, his teeth shall be set on edge."

Chinese.

The Chinese people have made practically no progress in dentistry nor any other science for hundreds of years, and their formulae, now, are largely made up of superstitious practices. "One of these rememdies is made up of different substances (among them garlic, and saltpetre), to be pulverized and made into pills. If the pain be on the left side, one introduces one of the pills into the right ear, and if on the right side, the pill is placed in the left ear." Some little operating was done by the Chinese, but puncturing was the principal remedy.

The Brahmins.

The Brahmins take extreme care of their teeth. Every morning they rub the teeth for about an hour with a small twig of the fig tree at the same time that, turned toward the rising sun, they recite their prayers and invoke Heaven's blessing on themselves and their families. To this old custom, no doubt, is due the great beauty and health of the teeth of the Brahmin caste.

Oceanica, Java, etc.

The people of Java substituted gold teeth for those that were missing. Dyeing the teeth black was considered a great embellishment among the people of Oceanica. In Japan, at least among the less educated people, the married woman may be easily distinguished from the others by her black and shining teeth.

Greeks.

The ancient Greeks, active in valuable sciences and arts, were not negligent in the field of oral pathology and surgery. Their comprehension of the evils resulting from the indiscriminate loss of teeth, led Erasistratus, the

first to dissect the human subject, to deposit in the temple of the Delphian Apollo, a leaden instrument which he called an 'odontogogon,' which probably had the form of a tooth forceps. He declared that it was only permissible to extract a tooth when it was loose enough to be taken out with a leaden instrument. From the time of Hippocrates on, the knowledge of dental anatomy and pathology increased, and the Greeks may be said to have early had a fair understanding of treatment, compared to other nations of their time.

Romans. In 450 B. C., the laws of the Twelve Tables make reference to the teeth bound with gold We find much interest in the early prescriptions of this people, filled with many really scientific statements mixed with a great deal of superstition. For an instance of the latter I quote this: "A remedy for toothache is to touch the diseased tooth with the tooth of a hyena, or to scratch the gums with the tooth of a hippopotamus which has been taken from the left side of the jaw."

Second Period, Beginning Middle Ages.

Arabians. Aulcasis, at the beginning of the twelfth century, promulgated doctrines that are accepted by the most progressive operators of the present time. In the treatment of epulis, he prescribe that, "After catching hold of the little tumor with a hook * * * its complete excision must be performed. This done, one must wait a while, until the hemorrhage ceases, and then either a little 'zegi' (blue vitriol) or other drying and styptic powder must be applied to the part. If the epulis recurs, which very often happens, the excision must be repeated and this followed by cauterization, since after this latter the evil will not return."

Again, his recommendations on tooth scaling are interesting. "Sometimes on the surface of the teeth, both inside and outside, as well as under the gums, are deposited rough scales, of ugly appearance, and black, green or yellow in color; thus corruption is communicated to the gums, and so the teeth are in process of time denuded. It is necessary for thee to lay the patient's head upon thy lap and to scrape the teeth and molars, on which are observed either true incrustations or something similar to sand, and thus until nothing more remains of such substances, and until also the dirty color of the teeth disappears, be it black or green or yellowish, or of any other color. If a first scraping is sufficient, so much the better; if not, thou shalt repeat it on the following day or even on the third or fourth day, until the desired purpose is obtained. Thou must know, however, that the teeth need scrapers of various shapes and figures,

on account of the very nature of this operation. In fact, the scalpel with which the teeth must be scraped on the inside is unlike that with which thou shalt scrape the outside and that with which thou shalt scrape the interstices between the teeth shall likewise have another shape. Therefore thou must have all this series of scalpels ready if so it pleases God." His instruments were numerous and in some instances are used, with but slight variations, at the present time.

Third Period, Sixteenth Century.

Andreas Vesalius was an untiring writer and skilled anatomist. In his work on anatomy of the teeth he showed that Galen, who had hitherto been regarded as an authority on teeth, was unacquainted with the structure of the teeth, as he was unaware of the existence of the pulp canal. Vesalius was the first to put this most important anatomical fact in evidence, as well as to establish other facts concerning the anatomy of the teeth.

Fallopius, whose name has been perpetuated in the history of anatomy through the discovery of the Fallopian tubes, taught that the teeth were generated twice, "The first time during intra-uterine life, the second after birth and before the seventh year." This corrected a theory of Vesalius's that the permanent teeth were produced from the roots of the temporary set.

Batholomeus Eustachius, whose name is kept before us as the first to describe the Eustachian tube, published in Venice in 1563, the "First treatise ever written on the anatomy of teeth, and represents a noteworthy progress in this branch of study."

Simultaneously with the work of Eustachius, Ambrose Paré was contributing in the highest degree to the progress of practical dentistry. The remarkable career of Paré, from an unlettered childhood, through an apprenticeship to a barber, growing into a minor surgery and finally to the post of chief surgeon to the court of Charles IX and Henri III, made a deep impression upon the literature of dentistry. One incident shows his skill was far beyond that of most surgeons of his day—he refers to the case of a friend of his "Who, having sustained, through a blow from the hilt of a dagger, a fracture of the lower jaw with almost complete expulsion of three teeth from their aveoli, had the fracture reduced by him; after replacing the teeth and binding them to the neighboring ones, he prescribed astringent mouth washes and liquid or semi-liquid nourishment, such as meat juice, panada, jelly, etc. The patient was completely cured and able to masticate with the three teeth as well as before." Paré introduced many new and valuable instruments,

some of which are still used with but slight modifications. He constructed obturators for cleft palates and devised many other practical operations which were in advance of his time.

Last Half of the Eighteenth Century.

Pierre Fauchard, the celebrated Frenchman, was the father of modern scientific dentistry. He lived from 1690 to 1761. His work, "*Le Chirurgien Dentiste,*" published in 1728, was the forerunner of a new era in dental literature. His statement, made so many years ago, is equally true to-day, "Although surgery in general has been greatly perfected in these latter times; although important discoveries have been made in anatomy and in modes of operating, and many learned and interesting observations have been published, nevertheless, dentists nowhere find in works on surgery sufficient aids to guide them in all their operations." The writings of Fauchard command the greatest admiration of the most progressive scientists of our time.

John Hunter.

Passing along to the days of John Hunter, the great surgeon of England whose work in physiology and anatomy marked an extraordinary advance in these sciences, discoveries were made which were of inestimable value to the historian, scientist and practitioner. Though a general surgeon, Hunter made experiments in the field of dentistry which will ever keep his name prominent in dental literature. It was Hunter who first implanted teeth, placing a tooth in a cock's comb to which it became attached. Several such specimens are now on exhibition in London in the Museum of the Royal College of Surgeons, Hunterian Collection. Concerning this experiment, he said: "They (the teeth) have most certainly a living principle by which means they make part of the body, and are capable of uniting with any part of a living body." It is upon this principle, no doubt, that the modern operator who implants teeth relies for his success.

Johann Jacob Joseph Serre, a Belgian, was among the dentists at the close of the eighteenth century and beginning of the nineteenth, who deserves special mention. He published a practical treatise on dental operations. It is said that this author "Was a great student, of very wide practice, and possessed an admirable spirit of observation and research." He was one of the earliest to write of the treatment of infection of the antrum of Highmore.

The invention of mineral teeth was due in part to a chemist, Duchateau of Paris, though he was assisted in making the invention practical by a dentist, de Chemant.

Nineteenth Century.

Elias Wildman.

Passing along the first half of the nineteenth century, dental education received an impetus which has gained rapidly up to the present time. Through the influence of Harris and Hayden, the first institution of dental learning was established in 1839, since which time other colleges have been erected until now there are fifty-two in the United States. In nearly all European countries dental schools have been established and successfully maintained.

In the department of prosthesis, no man of any time stood higher than did the late Dr. Elias Wildman, whose student it was my good fortune to be. With his knowledge of chemistry, his manipulative skill enabled him to develop porcelain teeth in their most approved form, and to him the world is indebted for the invention and manufacture of artificial gums. The beautiful coloring given to porcelain by him has been accepted and utilized throughout the world.

We are justly proud of the achievements of our distinguished confreres, many of whom have passed away. Inseparably associated with the department of operative dentistry are the names of Taft, Truman, Smith, Foster, Morgan, Abbott, Spaulding, Morrison, Dennis, McKellups, Alport, Cushing, Willmott, Weatherby and Eanis, all of whom have passed on; while among the living who are known everywhere for their achievements in this department, are Darby, Johnson, Kirk, Guilford, Starr, Watling, G. V. Black,* with many younger men now engaged in research work, whose achievements now and in the future will place them upon the roll of honor.

Foremost among the men who have attained distinction in the field of pathology was W. D. Miller of Germany, later of America. In England, Dr. Mummery; in Germany, Dieck; in France, Godon; in Holland, Trevers; in Italy, Guerini, and in Spain, Augilar, are among those foremost in this work.

In oral surgery, one man stood out conspicuously above all others in this field of our profession, and that man was the late James E. Garretson, the father of oral surgery. His achievements as an operator, his work as a pathologist, his great fund of knowledge and his versatility marked him as the most distinguished oral surgeon in the world. The remarkable temperament of Doctor Garretson won all to him who knew him. Next in order, I would name his student, whose work in anatomy has placed him in a class by himself, whose teachings, like those

*Dr. Black was alive when this was written, but news of his death arrived during the Congress.—Ed.

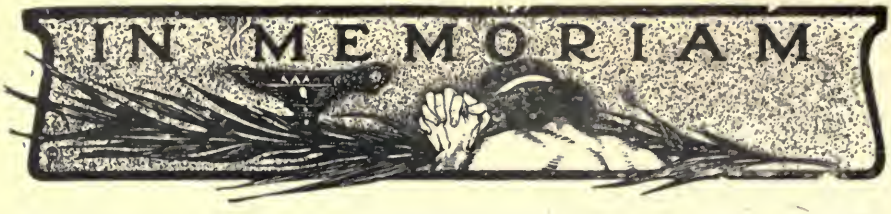
of John Hunter, will live forever after him, is Dr. Matthew Cryer, surgeon and anatomist.

When the history of dentistry shall have been brought down to the present day, the names of the men whom I have mentioned, with others, will be properly identified with the work they have done. Having known nearly all of them, I am sure that their honesty of purpose, great ability and devotion to their work, will round out to the full the history of modern dentistry.

In epitomizing the history of dentistry and its achievements, I have not, for the want of time, been able to bring out many of its essential features. I have given, however, as briefly as possible, a few of them. When we realize what is being accomplished in the department of oral prophylaxis—the coming forward of men of wealth who endow institutions for the care of children's teeth, as in the case of the Forsyth Brothers, of Boston, who have erected such an institution at a cost of over $2,000,000, and Eastman, of Rochester, who endowed a similar institution with $1,500,000, we may confidently look forward to the time when men of wealth will realize the importance to the human family of the preservation of health and will establish institutions such as Forsyth's and Eastman's in every city of the United States and other countries. With the advance of college courses to four years, the great improvement thus made in dental education will surely place the dental profession where its importance entitles it to be—among the foremost professions of the world.

Chairman A. M. Flood.

This concludes the afternoon program, and I wish to take advantage of this occasion to thank you most cordially for your kindness in favoring us with your company.



"G. Vardiman Black."

Whereas: The Almighty Father in His Divine Wisdom having withdrawn from this world the great Spirit of G. Vardiman Black;

Resolved: That the Panama-Pacific Dental Congress in full meeting assembled bows to the will of our Creator and offers up thanks for the wondrous works accomplished by the departed during his sojourn among us. Prof. Black in his life labored arduously and always for the progress of dental science, and the betterment of dental practice. And so successful was he in the multifarious fields of his endeavors that there is scarcely an epoch during his earthly visitation in which we do not find his name prominently present in our literature, conspicuous among the pioneers of dental progress, and in the end standing in a place apart on the Monument to Achievement. In death he is still with us. His weary body may be a theme of the past: His immortal soul may be with our Divine Father for the future, but the work that he has done, and the work he has made it possible for other men to do, will keep the name of Black always alive and conspicuous in the past, the present and the future of our beloved profession.

"Well done thou Good and Faithful Servant."

"Requiescat in Pace."

Resolved: That a page in the transactions of this Congress be set apart for this memorial and that a copy thereof, be sent to the dental friends, and to the bereaved family, with our sincere sympathy.

Business Session.

A session of the General Congress for the transaction of business was held on September sixth. The President, Dr. Frank L. Platt, presided.

Dr. Platt. The members in this general session will listen to a report of the Committee on Resolutions and one or two other items which we will bring before you.

Dr. Flood. The report of the Committee on Resolutions in regard to the demise of our beloved colleague, Prof. G. V. Black, reads as follows: (Dr. Flood read the resolutions).

Dr. Platt. What is your pleasure with reference to the resolutions?

Dr. Jas. T. Sharp. I move that they be adopted and their provisions carried out. (Seconded.)

Dr. Platt. It is moved and seconded that these resolutions be adopted and their provisions carried out; all who favor it say "aye." It was so ordered, unanimously.

Dr. Flood. A resolution is offered on behalf of the Forsyth Dental Infirmary:

"Forsyth Resolution."

Resolved: That the Panama-Pacific Dental Congress in session assembled, in behalf of its members, in behalf of the dental profession, and in behalf of humanity at large, extends gratitude to the Forsyth brothers for their wonderful gift, the Forsyth Dental Infirmary.

It is our belief that this great charity not alone proves of benefit to the children of Boston, and to the Commonwealth of Boston, but likewise, that it must eventually help all children and all commonwealths by inspiring other broad-minded and charitably-disposed citizens to found similiar institutions elsewhere.

But forever must we praise the Forsyths for the being the first in this great field for the uplift of the children and of the people of this country.

Dr. Platt. What is your pleasure gentlemen?

Dr. Westerfield of Oregon. I move that the resolution as read be adopted. (Seconded.)

Dr. Platt. All who favor the adoption of the resolution say "aye." It was so ordered.

Dr. Flood. A resolution is offered on behalf of the Eastman Project.

"Eastman Resolution."

Resolved: That the Panama-Pacific Dental Congress in session assembled learns with gratitude of the expressed purpose of Mr. Eastman to found in the City of Rochester, N. Y., a great Dental and Prophylactic Infirmary. And in belief of our members, and the members of the Dental Profession, and for the citizens of this country, we thank him for this great projected benefaction and we pledge him our sincerest and heartiest support in the enterprise to the end that he may succeed in his splendid purpose and achieve the utmost that can be achieved in such an Institute.

Dr. Fred Baird. Mr. Chairman, I move the adoption of the resolution. (Seconded.)

Dr. Platt. It is moved and seconded these resolutions be adopted. Are you ready for the question? It is so ordered. We have another matter to consider; we have a communication presented by Dr. Lulis M. Mateus, of Bogota Colombia, South America, which is of some importance. It was presented with the idea that this Congress was a permanent organization, but I have met the Consul for Colombia, and talked the matter over, and told him that I would present the matter before this meeting, and when read, if it was considered of sufficient importance, I would suggest that the matter be referred to the National Dental Association, and to the International Dental Federation, those being permanent organizations.

Dr. Flood read the communication as follows:

Honorable President:

To the members of the Committee of our Organization;

To those in charge of the Hygiene and Prophylaxis Sections;

To those in charge of the Sections on Education, Nomenclature, Literature, History and Legislation;

To the members of the International Committee.

Gentlemen:

The convening of a Congress in which the prominent authorities from all countries in the world would meet to bring about progress in dentistry, has suggested to me, one of the humblest of your colleagues, the idea of bringing to concrete effectiveness a hygienic and prophylactic propaganda.

After my plan has been considered and approved, I would suggest that it be brought to the attention of governments throughout the world and to the press in general in order that with the aid of the former and the publicity obtained through the latter, we may attain the results desired. My proposition is as follows:

First—Let it be required that a certificate, signed by a competent dentist, guaranteeing the possession of a mouth free of all infections, shall be required for the engagement of wetnurses, nursegirls, and even governesses.

Second—That such certificate should be couched in similar language in all countries and States. A common name for these certificates should be adopted and it should be possible to formulate the language that would satisfactorily express the facts. These certificates should expire every six months, new certificates being issued only after a new examination of the mouth. These examinations may or may not be free as is thought best. There should be a charge for each certificate equal to the amount of $1.00.

Third—Once the form of the certificate has been decided upon, dentists throughout the world should be informed in regard to this scheme as quickly as possible and they should be requested to co-operate.

Fourth—Manufacturers of dental goods should be asked to keep the blank certificates in stock to be sold at a low price.

Fifth—The form of the certificates should be the same throughout the world.

Sixth—I would suggest that resolutions passed by your Congress be communicated to the Government of the United States of America and other nations, through Diplomatic and Consular channels, asking for the assistance and co-operation of all Governments.

Seventh—Let this resolution also be communicated to the Faculties of Medicine and Dentistry so that they may inform their students.

Eighth—Let it also be sent to the leading organs of the press, asking their philanthropic assistance.

Dr. Platt. What is your pleasure in regard to this question?

Dr. L. L. Davis. In accordance with the suggestion which has been made, I move this matter be referred to the International Federation and to the National Dental Association. Seconded by Dr. F. A. Aquiliar.

Dr. Platt. Are you ready for the question?

Dr. Cuthbertson of Washington. I think this question should be referred to the State Societies, because we have no society except the National Dental Association, who has authority to take action, but the State Societies could direct men in each State on Hygiene Committees, and I would suggest this be referred to the organizations in each State.

Dr. Platt. My idea is the National Society; if it takes action, it can be referred back to the State Societies who are components of the National Dental Association.

Dr. Cuthbertson. It will take two or three years for it to get around in this way.

Dr. C. C. Noble of Los Angeles. It seems to me the idea was to make it a National movement, and if referred to the State Societies, we would not get any National action at all; it would be better to leave it with the National Dental Association, and thus make it a National affair.

Dr. Platt then took a vote, and the resolution was passed.

Adjourned.

Final Business Session.

A business session of the General Congress was held on September eighth. The President, Dr. Frank Platt, presided.

President Platt. The meeting will please come to order. I believe the purpose of the meeting is to listen to some resolutions some of the members wish to present. That will be the first order of business.

Dr. Garrett Newkirk. Pasadena, Calif. Mr. President and Gentlemen: I wish to present in the form of Resolutions of Appreciation, the following:

Resolutions of Appreciation.

Whereas: It was conceived in the minds of the people of San Francisco and California, that a great Exposition of all the arts of peace and fraternity should be held, beside the Golden Gate of the West, to celebrate the union of the oceans at Panama; which Exposition has been carried to a successful issue against almost insurmountable difficulties, and threatening world conditions; and

Whereas: In connection with this great enterprise it was further conceived by men of far-reaching thought that a Dental Congress, world-wide in the scope of its invocations and influence should be held; and

Whereas: This thought has been developed into the organization and completion of a convention, which shall constitute a high land-mark in the history of our profession; one of which the dentists of the whole United States and of the world may well be proud;

Therefore, be it resolved by the members of the Panama-Pacific Dental Congress, assembled in the city of San Francisco, in the year of our Lord, nineteen hundred and fifteen; that we express our high appreciation and gratitude, to all who have contributed to the success of this great co-ordinate effort. First, and in particular, to the President and the Secretary, for their unflinching courage and faith, and self-sacrificing toil

through years of time; to the other officers and to the members of the Committee of Organization, and to the members of the various other Committees, for their loyal support, counsel and labors, that have contributed to make this Congress so enjoyable and helpful to us all;

Resolved further, that to all other than dentists, the managers of the general Exposition, members of the press of the several cities who have given our proceedings courteous publicity, and to the many citizens who have contributed so happily to our entertainment, we extend our most grateful thanks.

Dr. Newkirk moved the adoption of these resolutions.

Dr. L. P. Haskell, Chicago. I heartily second these resolutions.

Dr. Platt. It is moved and seconded the resolutions be adopted as read. Are you ready for the question? Those in favor of same signifiy it by saying "aye." It is so ordered. Are there any other resolutions?

Dr. Jean Cline, Portland, Oregon. Members of the Panama-Pacific Dental Congress, only this morning a Committee was appointed to draft a set of resolutions to be presented here. I shall read them.

Army and Navy Resolutions.

Whereas: The Dental Profession in the public service of the United States has not been accorded the recognition equal to that enjoyed by the profession in Civic Communities, and

Whereas: The numerical strength of the Army and Navy Dental Corps is inadequate to the needs of their respective services,

Therefore, be it resolved, That the Panama-Pacific Dental Congress indorse the legislative efforts proposed by the National Dental Association, having as its object the needed increase of the above mentioned Corps, and the establishment of a higher professional and military status for dentistry:

Also, be it further resolved, That copies of this resolution be forwarded to the Surgeon-General of the Army, Surgeon-General of the Navy, and to the Chairmen of the Committees on Military Affairs of both Houses of Congress.

(Signed) JEAN CLINE, Chairman.
JOSEPH FORTGANG.
L. G. MITCHELL.

Dr. Frank L. Platt. You have listened to the reading of the resolutions. What is your pleasure?

Dr. C. W. Cuthbertson. I move their adoption. (Seconded.)

Dr. Frank L. Platt. It is moved and seconded these resolutions be adopted. All favoring the motion signify it by saying "aye." It is so ordered. Is there any other business to come before this Session?

If there is no other business, I would like to say a word on behalf of the officers of the Congress and of the various Committees. I know I speak for all of them when I say I greatly appreciate the resolutions which have been presented here to-day, and I believe, in fact I know I voice the sentiments of all who have worked for the success of the Congress when I say that we feel well repaid for all the effort expended for the success of the meeting, and we feel grateful to those who have come from far and near and who have helped to make this Congress the success it has been. I thank you all. If there is no further business to come before the Session, a motion to adjourn is in order.

Dr. J. L. Pease moved adjournment. Seconded.

Dr. Platt. It is so ordered.

Explanatory Note by the Editor.

It may seem that the transactions of the Panama Pacific Dental Congress have been unduly delayed in publication. Many factors have contributed to cause a loss of time. Some of these may be enumerated. Proof for correction was sent to authors throughout this country, the majority of whom reside thousands of miles away from the editor's home city. The Congress Committee agreed that in regard to discussions, the editor would not be required to forward proof to discussers, but when this part of the work was reached, in the great majority of instances, the editor decided that it would be an injustice to the discussers not to afford them opportunity for revising their remarks. This course had the advantage, also, of bringing the published transactions up to date. The opinions expressed, therefore, represent the views held to-day.

We have been much hampered by the war, which has caused repeated and almost constant disturbances in our printing office. We ran short of the decorative type used in the headlines and side headlines. We scoured the country in search of an increased supply, but were unable to obtain any. This made it necessary to print much of the matter before we could set up additional pages. This will explain the fact that the papers do not appear in Volumes I and II, in the exact order of their presentation at the Congress, as indicated by the reports of discussions in Volume III. We were obliged to print the papers which had been published in *Dental Items of Interest* in order to release the type.

Three or four of the papers read before the Congress do not appear in the transactions. This was due to the fact that, in one or two instances, we found it impossible to get the manuscripts from the authors. while one or two of the other authors did not supply the illustrations without which the papers would have been meaningless. One paper was omitted by instruction received from the Congress Committee, because it had been published prior to its presentation before the Congress.

It will be noted that the transactions of the Scientific Foundation and Research Commission of the National Dental Association do not appear. This is due to the fact that the matter presented was mainly in the form of lantern lectures, and related to work in progress rather than to work

completed. It was not deemed advisable to attempt the preparation of this material for publication, partly because of the difficulty of obtaining the illustrations, but mainly because the embryonic nature of the material rendered it unwise to make a permanent record. In this view Dr. Weston A. Price concurs. The one or two papers that were really complete have been published in the *Journal of the National Dental Association*, and those interested thus have access to them in that publication.

In conclusion, while, in view of all the obstacles, it has been a tremendous labor to get these transactions into present form, it has also been a pleasure for the undersigned in this small way to contribute to the final record of a great and successful Congress.

RODRIGUES OTTOLENGUI.

NEW YORK, July, 1918.

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Elvidge, G. F. ..... 1306 Broadway, Oakland
Emeis, H. P. ..... San Diego
Engs, John S. ..... Oak. Bnk. of Sav., Oakland
Endelman, Julio ..... Coll. of Dentistry, Los Angeles
Engstrom, C. O. ..... Sacramento
Engstrom, C. J. R. ..... Brockman Bldg., Los Angeles
Epsteen, Henry ..... 712 Hayes St., San Francisco
Eshelman, B. F. ..... 811 Story Bldg., Los Angeles
Evans, E. E. ..... Thomson Bldg., Oakland
Fagg, D. M. ..... Investment Bldg., Los Angeles
Farman, C. H. ..... 401-1st St., Napa
Faught, G. W. ..... Sebastopol
Felsenthal, Louis ..... 807 I. N. Van Nuys Bldg., Los Angeles
Fitzgerrel, G. N. ..... Highland
Fitch, O. P. ..... Placerville
Fleming, C. K. ..... San Jose
Fletcher, Thos. ..... 169 Collingwood St., San Francisco
Flood, Arthur M. ..... 240 Stockton, San Francisco
Fontaine, S. B. ..... 1st Nat'l. Bnk. Bldg., Oakland
Fontaine, Mae ..... 503 Con. Realty Bldg., Los Angeles
Ford, Lewis E. ..... Investment Bldg., Los Angeles
Forester, C. O. ..... 1200 Masonic Ave., San Francisco
Forrest, J. M. ..... 3287 Mission, San Francisco
Fortgang, J. ..... 1302 McAllister, San Francisco
Foster, H. C. ..... Corning
Frazer, I. A. ..... Bank of San Jose Bldg., San Jose
Frazer, T. J. ..... 250 Post, San Francisco
Fraser, W. E. ..... 1804 Market, San Francisco
Frederick, C. J. ..... Union Sav. Bnk. Bldg., Oakland
Fredrick, H. A. ..... 2152 Sutter, San Francisco
Frenzel, F. H. ..... Berkeley Nat'l. Bnk. Bldg., Berkeley
Freeman, C. E. ..... Watts Bldg., San Diego
Fujita, S. ..... 1825 Sutter, San Francisco

Fukasawa, J. .....338½ E. 1st, Los Angeles
Funk, R. R. .....Lemoore
Gabbs, M. F. .....391 Sutter, San Francisco
Gallagher, Chas. V. .....Anglo Bldg., 16th and Mission, San Francisco
Gammans, W. E. .....Alameda
Gaskill, Percy D. .....1225 Washington, Oakland
Gaston, W. A. .....1st Nat'l. Bnk. Bldg., San Jose
Gates, Harry E. .....146 Grant Ave., San Francisco
Gates, W. G. .....Paso Robles
Gautier, L. A. .....491 Castro, San Francisco
Gehan, R. F. .....922½ J. St., Sacramento
Giffen, Roy B. .....Hagelstein Bldg., Sacramento
Giguette, Frank A. .....Pasadena
Gilbert, A. H. .....965 Fifth St., San Diego
Gilbert, Adrian J. .....Am. Bank Bldg., Stockton
Gilbert, C. C. .....993 Haight, San Francisco
Gilbert, Geo. W. .....Fresno
Gilbertson, J. C. .....Union Sav. Bnk. Bldg., Oakland
Giles, C. R. .....Affiliated Colleges, San Francisco
Gillespie, D S. .....507 Con. Realty Bldg., Los Angeles
Gilman, C. D. .....Oak. Bnk. of Sav. Bldg., Oakland
Gilson, Ray E. .....Oak. Bnk. of Sav. Bldg., Oakland
Glasier, A. B. .....1st Nat'l. Bnk. Bldg., Oakland
Ginno, L. H. .....1151 Oxford St., Berkeley
Goddard, Malcolm.....Butler Bldg., San Francisco
Goff, E. E. .....Santa Barbara
Gonzalez, Frank I. .....291 Geary, San Francisco
Goodearle, J. H. .....Cedarville
Goode, W. A. .....Timken Bldg., San Diego
Goodman, N. W. .....610 So. Broadway, Los Angeles
Goodman, C. D. .....1225 Washington, Oakland
Gould, A. D. .....San Diego
Graham, C. F. .....Shreve Bldg., San Francisco
Graham, H. J. .....Oroville
Graham, Louis.....516 Sutter, San Francisco
Grant, A. H. .....Marysville
Grant, John T. .....Martinez
Gray, J. Walter.....704 Investment Bldg., Los Angeles
Greene, M. L. .....Security Bnk. Bldg., Oakland
Greenlaw, M. A. .....135 Stockton, San Francisco
Gresham, J. L. .....Coalinga
Gromaire, C. A. .....16 Sadowa St., San Francisco
Grotefend, Geo. A. .....Redding
Grove, W. C. .....Modesto
Gurley, John E. .....350 Post, San Francisco
Guthrie, A. R. .....305-6th Ave., San Francisco
Gwinn, W. M. .....3275 Sacramento, San Francisco
Haas, H. H. .....Story Bldg., Los Angeles
Haberdier, O. A. .....2841-23d St., San Francisco
Hackett, Arthur E. .....Head Bldg., San Francisco

Haines, B. W. .....323 Geary, San Francisco
Hall, Sherill W. .....2728 Channing Way, Berkeley
Halsey, N. S. .....San Rafael
Hambleton, W. D. .....Ocean Park
Hammond, Thos. F. .....Palo Alto
Hanford, W. H. .....Thayer Bldg., Oakland
Hansen, C. T. .....133 Geary, San Francisco
Harbour, Genette W. .....Auditorium Bldg., Los Angeles
Hardy, Sumner.....Head Bldg., San Francisco
Hare, Douglas A. .....833 Market, San Francisco
Harding, F. H. .....304 Central Bank Bldg., Oakland
Hargrave, Walter.....Covelo
Harnden, Frederic W. .....Shreve Bldg., San Francisco
Harris, George R. .....787 Market, San Francisco
Harris, Henry L. .....324 Georgia St., Vallejo
Harrison, E. L. .....126 Stockton, San Francisco
Hart, C. E. .....391 Sutter, San Francisco
Hart, O. P. .....Needles
Hart, Fred E. .....Union Square Bldg., San Francisco
Hart, W. C. .....135 Stockton, San Francisco
Harth, A. P. .....Lindsay
Hartman, P. C. .....3458 Fruitvale Ave., Oakland
Harper, Chas. E. .....Tulare
Harvey, C. L. .....Sonoma
Harwood, Edwin M. .....Consolidated Realty Bldg., Los Angeles
Harwood, H. B. .....Claremont
Hasslinger, Otto A.....1557 Ellis, San Francisco
Hatch, J. H. .....240 Stockton, San Francisco
Hauselt, C. P. .....750 Baker, San Francisco
Hawley, D. E. .....Antioch
Hawver, H. D. .....1361 Park, Alameda
Heaney, Wm. P. .....323 Geary, San Francisco
Heitman, Hubert.....240 Stockton, San Francisco
Hein, Geo. N. .....323 Geary, San Francisco
Heitman, F. W. .....437 Main, Merced
Henderson, C. H. .....Martinez
Henderson, H. N. .....Berkeley Nat'l. Bnk. Bldg., Berkeley
Henderson, W. D. .....Acheson Bldg., Berkeley
Hendricks, H. T. .....Hanford
Herd, Dolan F. .....Williams, Colusa Co.
Herkener, C. E. .....Los Banos
Herrick, C. A. .....133 Geary, San Francisco
Hicok, E. L. .....Colusa
Higaki, M. .....1662 Post, San Francisco
Hines, L. B. .....Lodi
Hinckley, Ira L. .....Fillmore
Hinman, H. T. .....Jones Block, Eureka
Hipkins, H. .....Shreve Bldg., San Francisco
Hirtz, N. F. .....360 Wilcox Bldg., Los Angeles
Hoagland, Wm. W. .....Box 272, San Francisco

Hocker, Jos. M. .....Mechanics' Bldg., San Francisco
Hogden, Jos. D. .....240 Stockton, San Francisco
Hodges, Geo. A. .....Turlock
Holm, Harris.....Bakersfield
Holman, F. D. .....Auditorium Bldg., Los Angeles
Hook, Beverly B.....111 Ellis, San Francisco
Hopkins, E. L. .....Fresno
Horner, H. I. .....704 MacDonald Ave., Richmond
Horner, LeRoy F. .....Center and Shattuck, Berkeley
Houck, F. H. .....Anaheim
Howe, A. B. .....Berk. Nat'l. Bnk. Bldg., Berkeley
Howard, Edwin G. .....322 Bradbury Bldg., Los Angeles
Howard, E. J. .....323 Geary, San Francisco
Howard, J. R. .....2161 Sutter, San Francisco
Howard, O. J. .....Fresno
Hughes, J. L. .....Dinuba
Hughes, Walter R. .....Federal Bldg., Oakland
Hultberg, F. L. .....787 Market, San Francisco
Hunt, Frederick M. .....W. P. Story Bldg., Los Angeles
Hursh, R. L. .....1001a-Guerrero St., San Francisco
Hussey, S. W. .....2649 Russell, Berkeley
Husted, G. B. .....Modesto
Idonoto, Y. C. .....1526 Geary, San Francisco
Iglehart, Thos. .....Galen Bldg., San Francisco
Irons, R. H. .....Los Gatos
Irgens, Louis S. .....Union Sav. Bnk. Bldg., Oakland
Ito, H. .....1526 Geary, San Francisco
Jaegeling, J. P. .....133 Geary, San Francisco
Jacobs, J. E. .....1006 W. 42d, Los Angeles
Jacobsen, L. J. .....410 Hughes Bldg., San Francisco
James, Edwin P. .....Security Bank Bldg., Oakland
Janke, Walter E. .....233 Post, San Francisco
Jarvis, C. F. .....1st Nat'l. Bnk. Bldg., Oakland
Johnson, A. E. .....424 Broadway, Los Angeles
Johnson, Sydney H. .....3863 Normandie, Los Angeles
Johnston, D. A. .....810 Title Ins. Bldg., Los Angeles
Johnston, Robert.....Eureka
Jones, E. L. .....338 E. Market, Stockton
Jones, H. M. .....Pomona
Jones, Leland D. .....Watts Bldg., San Diego
Jordan, M. Evangeline.....Marsh-Strong Bldg., Los Angeles
Kearns, Thos. .....203 Church St., San Francisco
Keating, Nora M. .....101 Post, San Francisco
Keeffe, E. D. .....135 Stockton, San Francisco
Kelly, E. H. .....3002 Stevenson, Los Angeles
Kelley, N. D. .....275 Post, San Francisco
Kenward, F. B. .....240 Stockton, San Francisco
Keogh, J. B. .....Pt. Arena
Kestler, F. H. .....Hagelstein Bldg., Sacramento
Keys, Robert E. .....391 Sutter, San Francisco

Khantamour, K. M. ..... Fresno
King, J. F. ..... Thomson Bldg., Oakland
Kingsbury, B. C. ..... 506-8 Powell Bldg., San Francisco
Kinley, Fred J. ..... Healdsburg
Kirk, H. M. ..... Pasadena
Kirtland, Howard B. ..... Com. Bank Bldg., San Luis Obispo
Kline, A. E. ..... Marysville
Kloeppel, F. C. ..... 309 West 53d St., Los Angeles
Knowles, Cal. W. ..... 703 Liebes Bldg., San Francisco
Knowles, W. A. L. ..... Butler Bldg., San Francisco
Knox, A. J. ..... Grant Bldg., San Francisco
Knox, Henry B. ..... Oak. Bank of Sav. Bldg., Oakland
Kroeck, P. H. ..... 2804 Folsom, San Francisco
Kruse, C. R. ..... South Berkeley Bank Bldg., Berkeley
Kruse, E. O. ..... South Berkeley Bank Bldg., Berkeley
LaBelle, F. J. ..... 3312 Broadway, Oakland
LaBaree, W. H. ..... Oakland Bank of Sav., Oakland
Lamb, L. R. ..... 920 First St., Benicia
Lane, R. C. ..... 908 Story Bldg., Los Angeles
Lane, F. J. ..... 240 Stockton St., San Francisco
Lang, J. Elton ..... 915 I. N. Van Nuys Bldg., Los Angeles
Lane, Gae M. ..... 2646 Bancroft Way, Berkeley
Lape, J. B. ..... L. A. Invest. Bldg., Los Angeles
Laraia, E. A. ..... 1461 Hyde, San Francisco
Latimer, D. H. ..... 1st Nat'l. Bnk. Bldg., Hanford
LaTouche, A. C. ..... 16th and Los Angeles Sts., Los Angeles
Layne, L. W. ..... 2419 Bancroft Way, Berkeley
Leavelle, A. B. ..... 6404 Hollywood Blvd., Los Angeles
Ledyard, Benj. C. ..... Garden City Bnk. Bldg., San Jose
Leek, Leland L. ..... 1700 Bush, San Francisco
Leggett, Robert M. ..... Butler Bldg., San Francisco
Leggett, John W. ..... Butler Bldg., San Francisco
Lemon, C. H. ..... Salinas
Leppo, D. H. ..... Santa Rosa
Leslie, W. W. ..... Porterville
Letcher, I. W. ..... 430 Fillmore, San Francisco
Levinger, L. V. ..... 177 Post, San Francisco
LeVeau, J. G. ..... Union Square Bldg., San Francisco
Likens, G. W. ..... Crockett
Likens, J. W. ..... 2265 California St., San Francisco
Linscott, W. R. ..... Pacific Ave., Santa Cruz
Linscott, L. M. ..... 112 Pacific Ave., Santa Cruz
Litchfield, O. J. ..... Healdsburg
Little, George B. ..... Box 83, Palo Alto
Locke, Franklin H. ..... 14th and Jefferson, Oakland
Lord, A. N. ..... 811 Story Bldg., Los Angeles
Loring, E. R. ..... Acheson Bldg., Berkeley
Lough, J. C. ..... 251 Devisadero St., San Francisco
Loughan, John T. ..... Baker & Detwiler Bldg., Los Angeles
Lovell, Robert B. ..... Freitas Bldg., San Rafael

Low, W. A. .....53 So. 1st St., San Jose
Lucchetti, Albert F. .....916 Kearny, San Francisco
Lundy, E. A. .....Investment Bldg., Los Angeles
Lutz, I. D. .....1st Nat'l. Bnk. Bldg., Berkeley
Lyman, E. H. .....213 Katz Bldg., San Bernardino
Lynch, J. H. .....2700a-Mission St., San Francisco
Lynch, T. A. .....803 California Bldg., Los Angeles
Lyon, H. D. .....Claremont and College Ave., Oakland
Mackay, J. H. .....Union Sav. Bank Bldg., Oakland
MacMillan, J. E. .....Central Bank Bldg., Pasadena
Magill, J. C. .....321 Georgia St., Vallejo
Mallett, Albert.....Stockton
Malone, G. E. .....Dunsmuir
Maltby, B. T. .....201st Nat. Bnk., Long Beach
March, Harry D. .....Chico
Marckres, C. C. .....Ryland Bldg., San Jose
Mariotte, P. A. .....Thomson Bldg., Oakland
Marks, L. H. .....Oroville
Markey, C. E. .....Pasadena
Marshall, John S. .....323 Geary, San Francisco
Mason, W. M. .....Channing & Telegraph, Berkeley
Mauk, Edwin H. .....1343-3d Ave., San Francisco
Maynard, Charles C. .....Garden City Bank Bldg., San Jose
Maynard, Stephen C. .....San Jose
McAlpin, J. D. .....344-14th, San Francisco
McAvoy, R. C. .....Story Bldg., Los Angeles
McCabe, W. H. .....5494 College, Oakland
McCan, F. A. .....Elks' Bldg., Stockton
McCarthy, Chas. J. ..... 166 Geary, San Francisco
McCowen, Chas. S. .....1st Nat'l. Bank Bldg., Palo Alto
McCoy, James David.....Brockman Bldg., Los Angeles
McCoy, John R. .....Brockman Bldg., Los Angeles
McCoy, John C. .....Auditorium Bldg., Los Angeles
McCollum, B. B. .....Wright & Callendar Bldg., Los Angeles
McClish, J. M. .....Healdsburg
McClaskey, F. T. .....9th and K. Sts., Sacramento
McCluskey, R. W. .....Sacramento
McCormick, J. J. .....4796a Mission St., San Francisco
McDaniel, G. T. .....133 Geary, San Francisco
McElhaney, M. A. .....San Fernando
McGovern, J. C. .....(San Mateo) So. San Francisco
McGuire, M. F. .....502 Clement, San Francisco
McKay, Walter.....5th and C. Sts., San Diego
McKibbin, W. M. .....Turlock
McLoughlin, Geo. V. .....135 Stockton, San Francisco
McKinley, Howard M. .....323 Geary, San Francisco
McManus, J. C. .....Sacramento
McMath, J. F. .....Thomson Bldg., Oakland
McMurray, Milton.....Butler Bldg., San Francisco
McQuaid, C. C. .....604 Butler Bldg., San Francisco

McQueen, J. S. ..... Bishop
Meek, C. A. ..... 1st Nat'l. Bank Bldg., Berkeley
Meek, R. W. ..... Delger Bldg., Oakland
Meisenheimer, L. L. ..... Ocean Park
Menges, M. M. ..... 802 N. Spadra, Fullerton
Merriam, A. F. Jr. ..... Oak. Bank of Sav. Bldg., Oakland
Merritt, C. Howard ..... Union Sav. Bank Bldg., Oakland
Metcalf, F. H. ..... 922 J. St., Sacramento
Meyer, F. W. ..... Central Nat'l. Bank Bldg., Oakland
Meyer, Paul E. ..... Odd Fellows Temple, Sacramento
Meyer, W. A. ..... Butler Bldg., San Francisco
Millberry, Arthur H. ..... 2792 California St., San Francisco
Millberry, Guy S. ..... Affiliated Colleges, San Francisco
Miller, H. E. ..... Physicians' Bldg., Woodland
Miller, Otis Locke ..... Physicians' Bldg., San Francisco
Millikin, John D. ..... 323 Geary, San Francisco
Minahen, George F. ..... 11 N. Hunter, Stockton
Mitchell, F. W. ..... Venice
Mitchell, H. C. ..... Sanger
Moad, Rey ..... Santa Cruz
Mogan, C. J. ..... Phelan Bldg., San Francisco
Montague, Jas. S. ..... 916 Van Nuys Bldg., Los Angeles
Moore, J. Franklin ..... 1st Nat'l. Bank Bldg., Oakland
Moore, Roy E. ..... 23d and MacDonald Ave., Richmond
Moore, H. W. ..... 1st Nat'l. Sav. Bldg., Oakland
Moore, T. E. ..... 2162 Center St., Berkeley
Moore, R. I. ..... 898 Dolores St., San Francisco
Moore, L. W. ..... Antioch
Moore, H. T. ..... 391 Sutter, San Francisco
Moose, Sanford M. ..... 323 Geary, San Francisco
Morey, Chas. L. ..... Delzid Bldg., Oakland
Morey, F. L. ..... Vallejo
Morffew, Thos. ..... 323 Geary, San Francisco
Morgan, F. E. ..... Santa Cruz
Morris, Amiel ..... 146 Grant Ave., San Francisco
Morris, J. I. ..... Head Bldg., San Francisco
Morse, W. D. ..... 710 Title Guar. Bldg., Los Angeles
Muegge, Theodore C. ..... 209 Post, San Francisco
Murphy, Raymond N. ..... 516 Sutter, San Francisco
Murray, B. C. ..... Porterville
Musante, Chas. B. ..... 1403 Valencia, San Francisco
Namura, Takeo ..... 1691 Post, San Francisco
Nasser, Richard John ..... 567 Hayes, San Francisco
Nash, D. E. ..... Box 658, San Jose
Neblett, J. W. ..... Riverside
Neff, B. G. ..... 1170 Eversle Blvd., Alameda
Nelson, R. W. ..... Santa Rosa
Neto, J. R. ..... Oak. Pub. of Sav. Bldg., Oakland
Newman, Harry C. ..... Mars' Stone Bldg., Los Angeles
Newkirk, Garrett ..... Crisan' Bank Bldg., Pasadena

Newbauer, Frank L. .....405 So. Hill, Los Angeles
Ney, M. E. .....511 Main, Vallejo
Nicolai, C. J. .....391 Sutter, San Francisco
Noble, C. S. .....Arroyo Grande
Noble, Chas. C. .....Wright & Callendar Bldg., Los Angeles
Noble, H. D. .....323 Geary, San Francisco
Nor, August C. .....Dalziel Bldg., Oakland
Norman, Chas. O. .....1703 O'Farrell, San Francisco
Novitsky, Josef.....Head Bldg., San Francisco
O'Brien, E. W. .....Box 888, Richmond
O'Connell, Robert E. .....162 Post St., San Francisco
O'Dell, G. E. .....Glendora
Ogle, W. O. .....3197-22d St., San Francisco
Ohea, G. H. .....1507 East 14th, San Leandor
Okubo, I. .....1765 Sutter, San Francisco
O'Neil, G. E. .....118 Locust, Long Beach
Osenburg, E. E. .....San Diego
Packard, H. R. .....27 North Euclid Ave., Pasadena
Packwood, L. R. .....Fresno
Pague, Frank C. .....Head Bldg., San Francisco
Papandre, R. D. .....1502 West St., Oakland
Parks, E. C. .....2841-23d St., San Francisco
Parker, Chas. Hadden.....88 Pacific Ave., Santa Cruz
Parker, F. M. .....628 Auditorium Bldg., Los Angeles
Parker, Jos. A. .....240 Stockton, San Francisco
Parker, J. P. .....Santa Cruz
Payne, Robert E. .....Lee and University Ave., Los Altos
Pearce, F. B. .....Century Bldg., San Jose
Pearce, C. H. .....Butler Bldg., San Francisco
Pease, Joseph Loran.....Federal Realty Bldg., Oakland
Peck, N. S. .....Merced
Perrault, J. F. .....1533 Schiller St., Alameda
Perry, J. Claude.....214 Hewes Bldg., San Francisco
Peters, Arnold B. .....516 Sutter, San Francisco
Peters, E. K. .....Fresno
Peters, H. C. .....323 Geary, San Francisco
Petray, H. C. .....425 Walsworth Ave., Oakland
Pfister, J. J. .....126 Post, San Francisco
Phillips, Frank H. .....Petaluma
Phillips, Geo. H. .....Hanford
Pitt, C. M. .....Sebastapol
Place, L. M. .....Palo Alto
Platt, Frank L. .....323 Geary, San Francisco
Pletcher, C. C. .....1st Sav. Bnk. Bldg., Oakland
Polin, O. M. .....San Luis Obispo
Pomeroy, G. E. .....562 Ashbury St., San Francisco
Poole, Geo. T. .....133 Geary, San Francisco
Porter, Chas. B. .....Butler Bldg., San Francisco
Porter, E. M. .....Napa
Porter, J. P. .....111 Ellis, San Francisco

Porter, W. S. ..... 603 Clayton St., San Francisco
Post, C. E. ..... 126 Stockton, San Francisco
Post, F. S. ..... La Jolla
Poston, C. Parke ..... Union Sav. Bnk. Bldg., Oakland
Potter, F. W. ..... Anderson
Pratt, E. W. ..... San Jose
Prior, C. E. ..... Taft
Proctor, Minnie M. ..... Terrance
Rader, George ..... Hewes Bldg., San Francisco
Ransom, H. E. ..... Broadway Central Bldg., Los Angeles
Rawlins, G. E. ..... Orland
Read, Emma T. ..... Am. Nat'l. Bank Bldg., San Diego
Redmond, J. J. ..... Humboldt Bank Bldg., San Francisco
Reed, W. D. ..... 105 Wilson Bldg., Los Angeles
Rees, F. G. ..... Sacramento
Regnart, P. S. ..... San Jose
Reilly, C. Francis ..... Fresno
Renwick, Wallace H. ..... Odd Fellows Temple, Sacramento
Requa, H. D. ..... West 23d St., Los Angeles
Reynolds, H. C. ..... Palo Alto
Reynolds, P. R. ..... Santa Ana
Rhodes, M. T. ..... 1st Nat'l. Bank Bldg., Berkeley
Rice, C. E. ..... Bradbury Bldg., Los Angeles
Richards, H. G. ..... Phelan Bldg., San Francisco
Richards, W. F. ..... Masonic Bldg., Sacramento
Richardson, Eliz. ..... 2424 Bancroft Way, Berkeley
Richardson, G. L. ..... Santa Paula
Rideout, Wm. E. ..... Newcastle
Ritz, Roy A. ..... 222-5th Ave., San Francisco
Rives, M. E. ..... Rio Vista
Robertson, John ..... Napa
Robinson, Ray D. ..... Marsh-Strong Bldg., Los Angeles
Robinson, W. H. ..... Alameda
Rockfellow, J. A. ..... Sisson
Rodda, Gordon S. ..... 9227 J. St., Sacramento
Rodden, Geo. F. ..... 177 Post, San Francisco
Rodolph, Geo. W. ..... 544 E. 14th, Oakland
Rogers, W. W. ..... Stanton Bldg., Pasadena
Roller, O. P. ..... Consolidated Realty Bldg., Los Angeles
Ronna, J. ..... San Bernardino
Ross, F. A. ..... Gilroy
Ross, Garland C. ..... 308 Spurgeon Bldg., Santa Ana
Ross, J. L. ..... Sprockels Bldg., San Diego
Rowe, Fred M. ..... 105 [illegible]
Rudee, Henry E. ..... 102 Clay St., San Francisco
Rudee, M. C. ..... 131 Clay St., San Francisco
Rule, R. W. ..... [illegible]
Rulofson, A. C. ..... Pacific Bldg., San Francisco
Sams, Homer L. ..... 301 Sansome, San Francisco
Samuels, Herbert J. ..... Central Bldg., Oakland

Sanderson, A. L. .....San Mateo
Saul, Overton M. .....804 Clement, San Francisco
Scannavino, J. A. .....346 Columbus Ave., San Francisco
Schillig, G. E. .....Marysville
Schlott, E. F. .....705 Hayes St., San Francisco
Schmohl, Louis W. .....1062 Devisadero, San Francisco
Schord, M. H. .....Hewes Bldg., San Francisco
Schraft, Albert C. .....246 Powell, San Francisco
Schroeder, E. R. .....2328 Santa Clara, Alameda
Schultheis, C. F. .....Federal Bldg., Oakland
Schultz, J. J. .....22d and Mission, San Francisco
Schumacker, Frederick.....San Jose
Schwaner, W. F. .....204 Central Bnk. Bldg., Oakland
Schwartz, R. H. .....Bakersfield
Scott, C. W. .....1353 Fruitvale Ave., Oakland
Scott, E. S. .....Fort Bragg
Scott, J. H. .....306 Bryte Bldg., Sacramento
Scott, Saxon B. .....291 Geary, San Francisco
Scott, W. K. .....3050 College Ave., Berkeley
Seiferd, Fred J. .....881 Eddy, San Francisco
Seager, Harold L. .....246 Powell, San Francisco
Seydell, Frank W. .....Chico
Sharp, Jas. G. .....Butler Bldg., San Francisco
Sharp, George C. .....Pasadena
Sharp, Wm. F. .....350 Post, San Francisco
Shaw, Ashby A. .....814 Story Bldg., Los Angeles
Shepherd, Geo. F. .....San Leandro
Sheppard, R. H. .....Redding
Shepard, Wm. .....1404 Park St., Alameda
Shiina, T. .....105 E. 1st, Los Angeles
Shores, F. W. .....311 Union Sav. Bank Bldg., Oakland
Shuey, Granville.....12th Ave. and E. 14th, Oakland
Shuin, M. .....266-7th, Oakland
Shumard, E. C. .....Coalinga
Sibley, W. E. .....218 Bradbury Bldg., Los Angeles
Sichel, Leo.....209 Post, San Francisco
Sikora, Paul F. .....3296 Mission, San Francisco
Silva, S. J. .....1st Nat'l. Bank Bldg., Oakland
Simms, J. B. .....Modesto
Simms, T. F. .....1st Nat'l. Bank Bldg., Modesto
Simonton, F. V. .....Dental Surgeon, San Quentin
Sisson, E. K. .....273 B. St., San Mateo
Smith, H. B. .....Sonora
Smyth, W. J. .....Union Sav. Bank Bldg., Oakland
Smith, H. D. .....1912 Encinal Ave., Alameda
Smith, E. G. .....2328 Santa Clara Ave., Alameda
Smith, T. Sydney.....Palo Alto
Smith, Jackson H. .....502 Church St., San Francisco
Smith, Robert E. .....Forum Bldg., Sacramento
Smith, T. Martin.....101 Post, San Francisco

Smith, Wm. C. ..... Pasadena
Smith, Jas. W. ..... 935 Mission, San Francisco
Smith, J. C. ..... Merced
Smith, Judson G. ..... 307 O. T. Johnson Bldg., Los Angeles
Smith, L. T. ..... 1st Nat'l. Bank Bldg., San Jose
Smyth, Thos. U. ..... Schroth Bldg., San Francisco
Snell, Edgar W. ..... Mission Sav. Bank Bldg., San Francisco
Snell, Edward ..... Dutch Flat
Snow, F. T. ..... 53 So. 1st St., San Jose
Snook, J. C. ..... National City
Snyder, G. A. ..... San Luis Obispo
Sobey, Arthur W. ..... Butler Bldg., San Francisco
Sobey, A. L. ..... 1st Nat'l. Bank Bldg., Berkeley
Soher, H. C. ..... Phelan Bldg., San Francisco
Solley, A. A. ..... Butler Bldg., San Francisco
Sparks, Frank ..... Security Bldg., Los Angeles
Somersett, J. C. ..... 3100 Lewiston Ave., Berkeley
Spare, H. L. ..... 69 Hamilton Place, Oakland
Spinks, W. H. ..... Security Bldg., Los Angeles
Spinks, A. M. ..... Security Bldg., Los Angeles
Squire, R. M. ..... Napa
Stalder, Joseph M. ..... Blake Block, Oakland
Stapff, F. W. ..... Butler Bldg., San Francisco
Stark, Thos. A. ..... 323 Geary, San Francisco
Stark, W. ..... Auburn
Steffan, J. F. ..... 495 Frederick, San Francisco
Steinwand, A. R. ..... Selma
Stephenson, H. H. ..... Peoples Sav. Bank Bldg., Sacramento
Stern, H. S. ..... Head Bldg., San Francisco
Stern, Leslie A. ..... St. Helena
Stewart, C. L. ..... Grass Valley
Stich, Benj. M. ..... 1933 Ellis, San Francisco
Stinson, C. G. ..... State St., Santa Barbara
Stile, H. D. ..... 2560 Mission, San Francisco
Stineman, J. H. ..... Roseville
Stofflet, J. H. ..... Bishop
Stokes, T. P. ..... Butler Bldg., San Francisco
Stonebrook, H. B. ..... Kinny Kendal Bldg., Pasadena
Stoodley, Gerald F. ..... 2500 Bancroft Way, Berkeley
Stover, W. T. ..... 508 Union League Bldg., Los Angeles
Strickland, S. L. ..... 2413 Fillmore, San Francisco
Stuttmeister, Wm. O. ..... Redwood City
Suggett, Allen H. ..... Butler Bldg., San Francisco
Sullivan, A. S. ..... Hewes Bldg., San Francisco
Sullivan, T. X. ..... 18th and Castro Sts., San Francisco
Sullivan, M. J. ..... 595 Butler St., San Francisco
Summers, R. A. ..... MacDonough Bldg., Oakland
Sumner, C. M. ..... Box 75, Placerville
Sweet, H. A. ..... Rio Vista
Sykes, A. E. ..... Union Sav. Bank Bldg., Oakland

Taft, F. D. .....Thayer Bldg., Oakland
Taintor, Clarke.....(U. S. A.) San Francisco
Talbot, J. L. .....Ocean Ave., Lompoc
Tanner, Maude M. .....Elkan Gunst Bldg., San Francisco
Tashjian, V. K. .....Fresno
Taylor, F. M. .....Ontario
Taylor, R. L. .....San Anselmo
Taylor, H. H. .....San Diego
Taylor, Walter J. .....Forum Bldg., Sacramento
Tedford, W. A. .....Taft
Tegarden, J. W. .....102½ N. Ave. 64, Los Angeles
Terzian, P. G. .....4466 Mission, San Francisco
Thomas, C. L. .....Auditorium Bldg., Los Angeles
Thomas, Montgomery.....Fresno
Thompson, Ellis H. .....Timken Bldg., San Diego
Tibbetts, A. L. .....Petaluma
Timerman, E. C. .....1327 Broadway, Oakland
Tobriner, M. L. .....Butler Bldg., San Francisco
Todd, Clifford.....900 K. St., Sacramento
Tolton, C. J. .....Physicians' Bldg., Sacramento
Tomlinson, Chas. M. .....Georgeson Bldg., Eureka
Towsend, E. L. .....321½ So. Hill, Los Angeles
Toye, W. O. .....1990 Sutter, San Francisco
Treen, T. O. .....1015 Story Bldg., Los Angeles
Tucker, Arthur C. .....San Bernardino
Tuckey, H. A. .....209 Post, San Francisco
Tufts, J. B. .....Butler Bldg., San Francisco
Tufts, L. R. .....Berkeley Bank Bldg., Berkeley
Tuttle, O. S. .....Santa Rosa
Twiggs, W. A. .....240 Stockton, San Francisco
Unland, F. H. .....408 L. A. Invest. Bldg., Los Angeles
Updyke, R. P. .....So. Pasadena
Upton, Edward A. .....1st Nat'l. Bank Bldg., Oakland
Usher, C. W. .....Coalinga
Vahue, E. O. .....202 Edgerly Bldg., Fresno
Van Amringe, D. R. .....Richmond
Van Orden, Geo. N. .....Shreve Bldg., San Francisco
Van Orden, Leander.....Shreve Bldg., San Francisco
Van Orden, Lincoln.....Shreve Bldg., San Francisco
Van Wyck, Crittenden.....240 Stockton, San Francisco
Vanderlip, G. G. .....5th and E. Sts., San Rafael
Vanderhurst, A. S. .....Hewes Bldg., San Francisco
Veatch, W. H. .....126 Stockton, San Francisco
Vecki, Victor J. .....Danville, Contra Costa Co.
Vicary, E. E. .....4016 Piedmont Ave., Oakland
Viersen, L. A. .....San Diego
Vogel, T. A. .....Head Bldg., San Francisco
Vogelman, D. J. .....238 Georgia St., Vallejo
Vogt, R. H. .....Reedley
Volk, Mark H. .....San Diego

Wadsworth, W. H. ..... Bancroft and Telegraph, Berkeley
Walder, Hans ..... San Anselmo
Walker, G. H. ..... Brockman Bldg., Los Angeles
Walker, F. Raymond ..... 926 Chester St., Oakland
Wallace, A. C. ..... 133 Geary, San Francisco
Wallace, Arthur H. ..... 1st Nat'l. Bank Bldg., Oakland
Walton, Phillip J. ..... Citizens' Bank Bldg., Oakland
Ward, A. W. ..... 405 Columbus Ave., San Francisco
Ward, J. N. ..... East Auburn
Ward, H. B. ..... 111 Ellis St., San Francisco
Warren, Frank L. ..... Los Angeles
Wassilko, S. ..... 1026 Market, San Francisco
Wassman, Max, Jr. ..... 714 Market, San Francisco
Wassman, Max ..... 714 Market, San Francisco
Waterbury, J. E. ..... 5011 Sunset Blvd., Los Angeles
Watkins, F. D. ..... Napa
Weaver, Clarence R. ..... Gilroy
Weaver, K. K. ..... Whittier
Weirick, Henry W. ..... Mechanics Bldg., San Francisco
West, J. Alden ..... 905 Brockman Bldg., Los Angeles
West, R. Frank ..... Willows
West, Russell C. ..... 602½ K. St., Sacramento
Westphal, O. F. ..... 275 Post, San Francisco
White, A. L. ..... 3833 Telegraph Ave., Oakland
White, E. H. ..... 1st Nat'l. Bank Bldg., Oakland
White, Fillmore ..... 133 Geary, San Francisco
White, Geo. A. ..... 1233½ State St., Santa Barbara
White, H. C. ..... Benicia
White, J. F. ..... 1st Nat'l. Bank Bldg., Oakland
White, Roy M. ..... 117 E. Colorado St., Pasadena
White, Sherman A. ..... 1159 Masonic Ave., San Francisco
Whitcomb, S. E. ..... 1647 Haight, San Francisco
Whitney, Edward O. ..... 323 Geary, San Francisco
Whomes, Arthur ..... Broadway Central Bldg., Los Angeles
Wiggins, C. G. ..... 263 North st., Colton
Wilcox, W. I. ..... Santa Clara
Wilcoxon, C. R. ..... Woodland
Wilder, J. O. ..... Sacramento
Wilkins, F. E. ..... Vacaville
Willey, H. D. ..... 3222 East 14th, Oakland
Williams, Frank A. ..... Wright & Callendar Bldg., Los Angeles
Williams, E. G. ..... Lodi
Wilson, J. F. ..... Jackson
Wilson, N. K. ..... 5663 Shattuck Ave., Oakland
Wilson, C. E. ..... 523 Geary, San Francisco
Wing, Wm. ..... Mariposa
Wise, Chas. F. ..... 1725 Webster St., Oakland
Woehl, H. J. ..... 1015 Mt'l St., San Luis Obispo
Wolfe, F. D. ..... Fresno
Wood, Wm. ..... Commercial Bldg., Oakland

Wood, C. C. .....Oakdale, Stanislaus Co.
Woolsey, R. I. .....2329 Webster, Berkeley
Worrall, Geo. H. .....Santa Clara
Wright, A. O. .....Oakland Bank of Sav. Bldg., Oakland
Wright, Roy B. .....275 Bacon Bldg., Oakland
Wright, W. C. .....135 Stockton, San Francisco
Wrigley, A. E. .....Eureka
Wylie, E. J. .....Hollingsworth Bldg., Los Angeles
Yount, G. B. .....Redwood City
Young, J. E. .....162 Post, San Francisco
Young, R. J. .....Tulare
Young, J. R. .....Box 515, Chico
Younger, Edward A. .....609 Butler Bldg., San Francisco
Yowata, T. ..... Oakland
Ziegler, C. L. .....Butler Bldg., San Francisco

Colorado.

Bernheim, Julien Rex.....(U. S. A.) Fort Logan
Chambers, W. T. .....California Bldg., Denver
Donaldson, J. R. .....319 McPhee Bldg., Denver
Fynn, H. A. .....500 California Bldg., Denver
Gray, B. Frank.....Exchange Bank Bldg., Colorado Springs
Hannah, Fred C. .....211 Masonic Temple, Denver
Hepp, Perry F. .....Cent. Sav. Bank Bldg., Denver
Hoffman, H. F. .....324 Metropolitan Bldg., Denver
Howell, J. L. .....532 Mack Bldg., Denver
Ketcham, A. H. .....725 Mack Bldg., Denver
King, A. A. .....Paonia
Laughlin, James I. .....315 Temple Court, Denver
McKay, F. S. .....Exchange Bank Bldg., Colorado Springs
Warner, E. R. .....401 California Bldg., Denver.
Watson, Arthur C. .....620 Metropolitan Bldg., Denver
Wilson, George Y. .....Exch. Bank Bldg., Colorado Springs

Connecticut.

Fahy, George C. .....New Haven
Gaylord, E. S. .....New Haven
McManus, Chas. .....Hartford
McManus, James .....Hartford

District of Columbia.

Cuthbertson, W. .....309-7th St., N. W., Washington
Donnally, Williams.....1612 Eye St., N. W., Washington
Finley, M. F. .....1928 Eye St., N. W., Washington
Hawley, C. A. .....1624 Eye St., N. W., Washington
Petty, William K. .....14th and H. St., N. W., Washington
Rust, Thos. L. .....1410 L. St., N. W., Washington

Florida.

Parmley, M. F. .....R. F. D. No. 4, Jacksonville

Georgia.

Adair, Robin.....319 Grant Bldg., Atlanta
Bornwell, C. M. .....716 Grant Bldg., Atlanta
Eby, Jas. D. .....509 Fourth Nat'l. Bank, Atlanta
Foster, S. W. .....100 Butler St., Atlanta
Hinman, Thos. P. .....510 Fourth Nat'l. Bank Bldg., Atlanta
Holland, Frank.....717 Grant Bldg., Atlanta
Huff, M. D. .....333 Candler Bldg., Atlanta
Johnson, H. Herbert.....Com. Nat'l. Bank Bldg., Macon
Jordan, J. R. .....Com. Nat'l. Bank Bldg., Macon
Lorenz, J. H. .....904-4th Nat'l. Bank Bldg., Atlanta
Mott, C. B. .....806 Atlanta Nat'l. Bank Bldg., Atlanta

Idaho.

Cruse, R. J. .....Pocatello
Easter, J. W. .....22 Gough St., Meridian
Gilbert, W. F. .....Lewiston
Jessup, A. A. .....Boise
Kimball, H. F. .....Kellogg
Lucas, M. Y. .....312 Overland Bldg., Boise
Over, C. B. .....415 Idaho Bldg., Boise
Phillips, Leon G. .....Jerome
Philpott, C. A. .....Caldwell
Stalker, W. C. .....Lewiston

Illinois.

Bacon, D. C. .....31 North State, Chicago
Black, A. D. .....122 So. Michigan Ave., Chicago
Black, G. V. .....31 West Lake St., Chicago
Bridges, Josiah S. .....7 West Madison, Chicago
Broadbent, T. A. .....25 E. Washington, Chicago
Brophy, Truman W. .....81 East Madison, Chicago
Buckley, J. P. .....39 So. State, Chicago
Case, C. S. .....108 N. State, Chicago
Converse, A. E. .....Springfield
Cormany, J. W. .....Mt. Carroll
Davis, L. L. .....81 East Madison, Chicago
Dittmar, G. W. .....59 East Madison, Chicago
Elliott, E. W. .....39 North State, Chicago
Frazee, O. L. .....1233-4th St., Springfield
Gallie, Donald M. .....32 North State, Chicago
Gethro, Fred W. .....122 So. Michigan Ave., Chicago
Gilmer, Thos. L. .....122 So. Michigan Ave., Chicago
Goslee, H. J. .....108 North State, Chicago
Green, Lelan Otis.....Heyworth Bldg., Chicago
Grisamore, T. H. .....29 East Madison, Chicago
Haskell, L. P. .....37 So. Wabash Ave., Chicago
Hoffman, E. C. .....Plainfield
Hoover, W. A. .....Gibson City

James, Austin F. .....5627 Blackstone Ave., Chicago
Jensen, A. G. W. .....Elmhurst
Johnson, C. N. .....22 East Washington, Chicago
Logan, W. H. G. .....29 East Madison, Chicago
Macpherson, Egbert E. .....1133 E. 63d St., Chicago
Moorehead, F. B. .....122 So. Michigan Ave., Chicago
Noyes, Frederick Bogue.....122 So. Michigan Ave., Chicago
Nyman, John E. .....30 North Michigan Ave., Chicago
Pfeifer, Josephine D. .....25 East Washington, Chicago
Prothero, J. H. .....31 West Lake St., Chicago
Roach, E. F. .....59 East Madison, Chicago
Sitherwood, Geo. D. .....Bloomington
Skinner, F. H. .....25 East Washington, Chicago
Stryker, H. M. .....Galena
Thompson, G. A. .....4704 Vincennes Ave., Chicago
West, George N. .....32 North State, Chicago
Whalen, W. F. .....Peoria
Williams, W. Ira.....122 So. Michigan Ave., Chicago

Indiana.

Dicks, C. W. .....Indianapolis
Henshaw, Fred R. .....Pythian Bldg., Indianapolis
Kibler, Edwin R. .....I. O. O. F. Bldg., Indianapolis
King, Otto U. .....Huntington
La Rue, F. Wade.....2968 Central Ave., Indianapolis
Park, W. A. .....Richmond
Prow, Fred J. .....Bloomington
Raper, Howard R. .....11 W. North St., Indianapolis
Vallette, W. A. .....Goshen
Walsh, T. H. .....Indianapolis

Iowa.

Conzett, J. V. .....Dubuque
Engle, Howard S. .....Lineville
Feike, L. V. .....Eldora
Foote, L. L. .....Richland
Sheridan, P. H. .....1200 Main, Dubuque
True, F. D. .....801 Hubbell Bldg., Des Moines
Volland, R. H. .....Iowa City

Kansas.

Burgson, C. E. .....Leavenworth
Burket, J. Fremont.....Kingman
Glass, E. C. .....Booth Bldg., Independence
Greenfield, E. J. .....Wichita
Maxwell, R. C. .....Wichita
Osterhout, C. D. .....Clay Center
Scott, M. E. .....37 B. Thomas St., Fort Leavenworth

Kentucky.

Clark, R. B. .....(U. S. A.) Fort Scott, Paris
Gunkel, J. H. .....643 Monmouth, Newport
Tileston, H. B. .....916 Stark Bldg., Louisville
Walz, W. F. .....159 East Main, Lexington

Louisiana.

Crozat, Geo. B. ..... 1233 Barracks St., New Orleans
Ducassi, Edw. B. ..... Maison Blanche Bldg., New Orleans
Gorman, J. A. ..... Maison Blanche Bldg., New Orleans
Ratzburg, Fred ..... Levy Bldg., Shreveport
Serrazin, Jules J. ..... 424 Godchaux Bldg., New Orleans
Vignes, C. Victor ..... 709 Macheca Bldg., New Orleans
Wahl, J. P. ..... Maison Blanche Bldg., New Orleans
Wiley, J. H. ..... 709 Interstate Bank Bldg., New Orleans
Wood, Wallace, Jr. ..... 416 Macheca Bldg., New Orleans

Maine.

Bibber, Wm. R. ..... Eastport
Chase, A. L. ..... Bangor
Clark, Arthur H. ..... New Portland
Fellows, Dana W. ..... 655 Congress St., Portland
Grant, Giles C. ..... 655 Congress St., Portland
Graves, F. P. ..... Saco
Jones, H. P. ..... Norway
Kelley, Henry A. ..... 727 Congress St., Portland
Maxfield, Fred E. ..... Stetson Bldg., Bangor
Payson, Will S. ..... Castine
Tibbetts, T. E. ..... Rockland

Maryland.

Brewer, A. C. ..... Baltimore
Corelli, L. D. ..... Baltimore
Deichman, Geo. ..... Baltimore
Grieves, Clarence J. ..... Baltimore
Hardy, Geo. E. ..... Baltimore
Kelsey, Harry E. ..... 817 Parke Ave., Baltimore
Orrison, J. E. ..... Baltimore
Smith, B. Holly ..... Baltimore

Massachusetts.

Allen, F. W. ..... Boston
Boardman, Waldo E. ..... 419 Boylston, Boston
Gilman, Wm. F. ..... 947 State, Worcester
Howe, Percy R. ..... 10 Exeter, Boston
Keltie, James ..... 419 Boylston, Boston
Proctor, Chas. M. ..... 419 Boylston, Boston
Smith, Eugene H. ..... 238 Dartmouth, Boston
Tracy, E. S. ..... Brockton

Michigan.

Burbridge, Chas. A. ..... Grand Rapids
Burke, Geo. F. ..... Stevens Bldg., Detroit
Chamberlain, Edwin J. ..... Ashton Bldg., Grand Rapids
Chesterfield, A. P. ..... David Whitney Bldg., Detroit
Copp, Geo. H. ..... Plainwell

Corbin, Arthur.....St. Johns
East, B. R. .....14th and Milwaukee, Detroit
Elliott, W. H. .....1539 Jefferson Ave. E., Detroit
Giffen, Wm. A. .....Washington Arcade, Detroit
Guerne, Alfred A. .....Kalamazoo
Harris, Geo. B.....1201 David Whitney Bldg., Detroit
Hildreth, Claude P. .....Grand Rapids
LeGro, Albert L. .....David Whitney Bldg., Detroit
Limpert, F. Alvin.....Clay and Oakland, Detroit
MacDonald, F. W. .....David Whitney Bldg., Detroit
Murray, Dennis.....Grand Rapids
Oakman, C. H. .....David Whitney Bldg., Detroit
Raymond, Henry C. .....David Whitney Bldg., Detroit
Simmons, Robt. C. .....David Whitney Bldg., Detroit
Stevens, James C. .....Washington Arcade, Detroit
Straith, Samuel.....David Whitney Bldg., Detroit
Thompson, J. M. .....Kresge Medical Bldg., Detroit
Ward, Marcus L. .....703 E. University Ave., Ann Arbor
Watson, Milton T. .....David Whitney Bldg., Detroit
White, Oliver W. .....Fine Arts Bldg., Detroit
Wood, C. P. .....Shurly Bldg., Detroit

Minnesota.

Brunet, J. L. .....Braham
Faucett, A. C. .....Rochester
Hartzell, Thos. B. .....Donaldson Bldg., Minneapolis
Park, J. D. .....108 West Superior St., Duluth
Peck, Arthur E. .....Donaldson Bldg., Minneapolis
Phillips, B. A. .....288 N. Prior Ave., St. Paul
Robertson, W. A. .....Crookston
Searl, A. C. .....Owatonna
Smith, Walter H. .....Minneapolis
Sykora, L. J. .....West Superior, Duluth
Wedelstaedt, E. K. .....New York Life Bldg., St. Paul

Mississippi.

Johnson, A. J. .....Laurel
Rowe, Catherine A. .....Brighton

Missouri.

Allen, Chas. Channing.....10th and Troost Ave., Kansas City
Bredouw, Ludwig.....614 Shukert Bldg., Kansas City
Campbell, Dayton D. .....729 Shukert Bldg., Kansas City
Christy, Ralph L. .....700 East 31st St., Kansas City
Conrad, Wm. .....3666 Olive St., St. Louis
Dewey, Martin.....1016 E. Armour Blvd., Kansas City
Greene, Jacob W. .....Chillicothe
Grosby, Chas. P. .....201 Victoria Bldg., St. Louis
Hull, James W. .....Kansas City
Hungerford, Chas. L. .....518 Reliance Bldg., Kansas City

Loebenstein, Sam'l. .....332 Argyle Bldg., Kansas City
Marshall, Jay P. .....7401 Hazel Ave., St. Louis
Miller, Jesse.....Marysville
Patterson, J. D. .....Keith and Perry Bldg., Kansas City
Peak, James L. .....1007 Main, Lexington
Seibel, Richard M. .....707 Bryant Bldg., Kansas City
Simpson, Clarence O. .....806 Century Bldg., St. Louis
Tanzey, Hugh G. .....508 Commerce Bldg., Kansas City
Thorpe, Burton Lee.....3605 Lindell Blvd., St. Louis

Montana.

Hampton, T. M. .....Helena
Johnson, R. R. .....1-2-3-Lapeyre Blk., Great Falls
Schrumpf, A. J. .....Miles City

Nebraska.

Bruening, E. H. .....330 Bee Bldg., Omaha
Pierce, J. S. .....207 Frat Bldg., Lincoln
Shearer, Wm S. .....City Nat'l. Bank Bldg., Omaha
Vance, M. E. .....Lincoln
Wallace, J. H. .....212 Brown Blk., Omaha

Nevada.

Arnold, S. .....Goldfield
Alexander, C. .....Elko
Bliss, W. H. .....Carson City
Cavell, W. H. .....Carson City
Ducey, John V. .....Goldfield
Dunbar, E. F. .....Fallon
Elliott, B. F. .....Goldfield
Lawson, Wm. J. .....Virginia
Masterson, C. H. .....Yerington
McNeil, H. A .....Reno
Park, W. S. .....Las Vegas
Rhodes, C. E. .....Reno
Rulison, David W. .....Reno
Rulison, Helen M. .....Tonopah
Rulison, J. F. .....Reno
Smith, J. L. .....Fallon
Starr, C. T. .....Reno
Sweet, M. S. .....Gardenville
Wadleigh, W. M. .....Las Vegas

New Jersey.

Davidson, J. B .....516 Broad St., Newark
Fowler, Henry.....114 N. 4th, Harrison
Gelston, Wm. H. .....Camden

New Mexico.

Alger, Edmund J .....302½ W. Central Ave., Albuquerque

Dawson, H. D. .....Magdalena
Rodriguez, F. E. .....Indian School, Albuquerque

New York.

Belcher, W. W. .....186 Alexander St., Rochester
Bogue, E. A. .....63 West 48th St., New York
Burkhart, H. J. .....Batavia
Dunning, Wm. B. .....140 West 57th St., New York
Eshelman, M. Burton.....170 Hodge Ave., Buffalo
Fisher, Wm. C. .....373 Fifth Ave., New York
Gillett, Henry W. .....140 West 57th St., New York
Goldberg, Harry A. .....2 West 86th St., New York
Hert, Benedict S. .....Chamber of Com. Bldg., Rochester
Hillyer, Ellison.....1143 Dean St., Brooklyn
Hofheinz, Rud. H. .....Chamber of Com. Bldg., Rochester
Hyatt, Thaddeus P. .....17 East 38th St., New York
Jackson, Victor Hugo.....40 East 41st St., New York
Jarvie, William.....19 West 54th St., New York
Link, Edward G. .....226 Cutler Bldg., Rochester
Litten, Arthur S. .....238 West 78th St., New York
Meisburger, Louis.....85th North Pearl St., Buffalo
Nyce, J. E. .....302 E. 35th St., New York
Ottolengui, R. .....80 West 40th St., New York
Palmer, Stephen.....272 Mill St., Poughkeepsie
Polhamus, Agnes I. .....98 Morningside Ave., New York
Rettick, Hugo.....52 West 68th St., New York
Reynolds, H. E. .....577 Broadway, Buffalo
Rhein, M. L. .....38 East 61st St., New York
Ruyle, James R. .....40 East 41st St., New York
Schlottman, E. L. .....809 Chamber of Com. Bldg., Rochester
Smith, W. W. .....83 East Ave., Rochester
Spies, W. F. .....3505 Broadway, New York
Tracy, W. D .....46 West 51st St., New York
Twiggar, Albert W. .....Ossining
Van Saun, S. W. .....250 West 74th St., New York
Weinstein, Louis J. .....507 Fifth Ave., New York
Wheeler, Herbert L. .....560 Fifth Ave., New York
Williams, J. Leon.....220 West 42d St., New York
Young, J. Lowe.....576 Fifth Ave., New York

North Carolina.

Alexander, C. L. .....Charlotte
Morrow, R. M. .....Main and Front, Burlington
Spurgeon, J. S. .....Hillsboro
Watkins, J. E. .....Winston-Salem

North Dakota.

Eckman, L. L. .....Grand Forks
Smith, Tom.....Langdon
Sprake, Wm. F. .....Casselton

Ohio.

Barber, L. L. ..... Spitzer Bldg., Toledo
Brown, Homer C. ..... 185 East State, Columbus
Chapman, F. R. ..... 305 Shultz Bldg., Columbus
Chase, J. M. ..... 16 East 3d St., Dayton
Custer, L. E. ..... Dayton
Hall, Edward E. ..... New 1st Nat'l. Bank Bldg., Columbus
Hayden, Gillette ..... 289 East State St., Columbus
Heinemann, O. S. ..... 808 Laurel St., Cincinnati
Henderson, J. M. ..... 13½ East State, Columbus
Hisey, Walter H. ..... 2d Nat'l. Bank Bldg., Toledo
Kotts, F. H. ..... 813 Ohio Bldg., Toledo
Martindale, W. E. ..... 50 Ruggery Bldg., Columbus
Price, Weston A. ..... 10406 Euclid Ave., Cleveland
Saum, Ira M. ..... 718 Rose Bldg., Cleveland
Semans, H. M. ..... Columbus
Smith, W. P. ..... 5716 Euclid Ave., Cleveland
Smith, Arthur E. ..... 636 Rose Bldg., Cleveland
Stewart, J. B. ..... 905 Rubold Bldg., Dayton
Teter, W. C. ..... 946 Rose Bldg., Cleveland
Wilson, Geo. H. ..... 701 Schofield Bldg., Cleveland
Young, S. N. ..... 39 West McMillan, Cincinnati

Oklahoma.

Caughron, J. R. ..... 434 Lee Bldg., Oklahoma City
Ewing, F. L. ..... Blackwell
Mitchell, L. G. ..... 712 State Bank Bldg., Oklahoma City
Overmyer, E. E. ..... 402 Phoenix Bldg., Muskogee
Potter, A. B. ..... 622 State National Bldg., Oklahoma City
White, Chas. L. ..... 611 Colcord Bldg., Oklahoma City

Oregon.

Adams, W. C. ..... Selling Bldg., Portland
Adams, Waldo J. ..... 208 White Temple, Eugene
Barr, Chas. W. ..... Astoria
Bettman, M. M. ..... Electric Bldg., Portland
Bilyeu, Walter R. ..... Albany
Boire, L. M. ..... 408 Morgan Bldg., Portland
Boody, Fred F. ..... 814½ Corbett St., Portland
Britten, M. R. ..... Grants Pass
Brownton, H. S. ..... La Grande
Burmester, H. E. ..... North Bend
Chance, Arthur W. ..... Corbett Bldg., Portland
Cline, Jean ..... Broadway Bldg., Portland
Fiebig, Wm. F. ..... 308 Swetland Bldg., Portland
FitzPatrick, Louis ..... 615 Fifth St., Portland
Gray, Londa B. ..... Albany
Handford, W. A. G. ..... Corvallis
Harris, H. J. ..... Washington Bldg., Portland
Harris, M. C. ..... Eugene

Harrison, C. M. .....1003 Selling Bldg., Portland
Harper, Jas. A. .....Corvallis
Hesse, J. L. .....Eugene
Hickey, M. B. .....Morgan Bldg., Portland
Hirstel, Edward.....1003 Selling Bldg., Portland
Hunt, Robert C. .....Albany
Hunt, Roy H. .....Stevens Bldg., Portland
Hurd, Everett M. .....N. Pac. Dental Col., Portland
Jenkins, C. H. .....Hood River
Johnson, F. H. .....Ashland
Jones, J. C. .....Broadway Bldg., Portland
Jones, Treve.....1212 Selling Bldg., Portland
Kelty, H. E. .....Marshfield
Lee, W. B. .....306 White Temple, Eugene
Leonard, W. A. .....Klamath Falls
Lyon, Leonard.....Lakeview
Marshall, John R. .....Hillsboro
Miller, J. M. .....Eugene
Miller, Herbert C. .....N. Pac. Coll. of Dentistry, Portland
Moore, Clifford H. .....401 Stevens Bldg., Portland
Mount, Clyde.....Oregon City
Mulkey, S. A. .....Central Point
Olinger, H. H. .....Salem
Pearn, Frank G. .....709-10 Broadway, Portland
Pickins, L. L. .....Oregon City
Peters, George D. .....1009 Corbett Bldg., Portland
Phipps, T. D. .....Medford
Pineo, D. W. .....Hood River
Rossman, A. G. .....922 Selling Bldg., Portland
Senn, E. M. .....408 Morgan Bldg., Portland
Shearer, W. C. .....Broadway Bldg., Portland
Stevenson, J. E. .....Majestic Theatre Bldg., Portland
Templeton, C. R. .....571 Glisan St., Portland
Toye, Wm. A. .....967 Central Ave., Marshfield
Vaughan, E. A. .....Electric Bldg., Portland
Voge, F. A. .....Portland
Walker, W. W. .....Grants Pass
Westerfeld, Fred.....Klamath Falls
Utter, F. L. .....Salem

Pennsylvania:

Bachman, Chas. A. .....Emmaus
Biddle, J. F. .....517 Arch St., Pittsburgh
Capon, Wm. A. .....Real Estate Trust Bldg., Philadelphia
Castro, T. D. .....1831 Chestnut St., Philadelphia
Cooper, Frank G. .....Real Estate Trust Bldg., Philadelphia
Cryer, M. H. .....1623 Walnut St., Philadelphia
Culver, Martin B. .....1529 Locust St., Philadelphia
DeLong, Geo. J. .....Allentown
Friesell, F. C. .....Highland Bldg., Pittsburgh

Friesell, H. E. ..... 6000 Penn. Ave., Pittsburgh
Gardner, D. S. ..... Dime Bank Bldg., Scranton
Hitch, D. M. ..... 15th and Walnut Sts., Philadelphia
Jarman, Arthur N. ..... 1900 Chestnut St., Philadelphia
Jones, Victor S. ..... Bethlehem
Lewis, O. G. L. ..... 1529 Locust St., Philadelphia
Lowell, W. H. ..... Lancaster
Middaugh, W. C. ..... Easton
Register, H. C. ..... 1907 Chestnut St., Philadelphia
Reynolds, A. H. ..... 4630 Chester Ave., Philadelphia
Richards, Walter ..... Slatington
Seip, Howard S. ..... 721 Walnut St., Allentown
Strauss, Ernest I. ..... 210 W. Chelton Ave., Germantown
Swing, R. Hamill D. ..... 1623 Walnut St., Philadelphia
Trueman, Wm. H. ..... 47 High St., Germantown
Werts, H. C. ..... 1011 Sixth Ave., Beaver Falls
Zenfing, Wilson ..... 700 Perry Bldg., Philadelphia

South Carolina.

Chisholm, W. W. ..... Anderson
Dotterer, Louis P. ..... Charleston
Rogers, J. R. ..... Dillon
Quattlebaum, E. G. ..... Palmette Bldg., Columbia

Tennessee.

Dale, J. A. ..... Jackson Bldg., Nashville
Harrison, Anna L. ..... 1st Nat'l. Bank Bldg., Nashville
Melendy, Arthur R. ..... Knoxville
Morgan, Henry W. ..... Nashville
Rich, Celia ..... Nashville

Texas.

Beacham, J. C. ..... 508 S. W. Life Bldg., Dallas
Carroll, R. W. ..... Beaumont
Chapman, W. T. ..... Sonora
Fife, J. G. ..... Dallas
Hall, Rupert E. ..... Scanlan Bldg., Houston
Jones, Bush ..... Dallas
McCauley, C. M. ..... 810 Wilson Bldg., Dallas
Morgan, Guy ..... Paris
Rutherford, J. K. ..... Stamford
Scherer, W. H. ..... Scanlan Bldg., Houston
Schlosser, W. J. ..... San Antonio
Staples, G. Wallace ..... 1835 Park Row, Dallas
Stewart, R. H. ..... 1101 2 Amicable Bldg., Waco

Utah.

Adkins, O. E. ..... Beaver City
Barber, A. D. ..... 217 Eccles Bldg., Ogden
Budge, O. H. ..... Logan

Bullock, F. O. .....Salina
Burnham, S. S. .....Woods Cross
Christiansen, J. F. .....Salt Lake City
Coret, Frank.....Salt Lake City
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Davis, Wesley.....Salt Lake City
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Goetzman, H. B. .....Price
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Marshall, W. A. .....Salt Lake City
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Pain, W. S. .....223 Eccles Bldg., Ogden
Paulson, P. M. .....Logan
Petty, W. H. .....721 Eccles Bldg., Ogden
Richards, Calvin W., Jr. .....Bountiful
Ruckenbrod, W. G. .....Logan
Sainsbury, O. .....Richfield
Seegmiller, J. .....Richfield
Snedaker, J. F. .....2457 Washington Ave., Ogden
Squires, W. A. .....Judge Bldg., Salt Lake City
Stewart, I. P. .....Logan
Stiehl, George F. .....Judge Bldg., Salt Lake City
Stockman, D. D. .....Kearns Bldg., Salt Lake City
Stookey, G. L. .....Lehi
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Tripp, E. A. .....Atlas Bldg., Salt Lake City
Waddell, J. H. .....Salt Lake City
Watson, A. W. .....2421 Washington Ave., Ogden
Westphal, C. F. .....Pleasant Grove
Wherry, A. C. .....Salt Lake City
Wherry, S. W. .....Lewis Block, Ogden
White, D. N. .....Eccles Bldg., Ogden

Virginia.

Walker, J. Lewis.....Norfolk

Washington.

Alexander, W. S. .....Cobb Bldg., Seattle
Argue, J. E. .....Nat'l. Realty Bldg., Tacoma
Barnes, E. S. .....Cobb Bldg., Seattle
Barton, G. E. .....Sedro Woolley
Beddow, Emma M. .....Leary Bldg., Seattle

Brogunier, D. L. ..... Kennewick
Calkin, R. A. ..... Prosser
Cloes, J. W. ..... Bankers Trade Bldg., Tacoma
Corfman, C. L. ..... Old Nat'l. Bank Bldg., Spokane
Dasher, R. R. ..... Toppenish
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DeMille, Carlyle ..... Leary Bldg., Seattle
Edgers, E. B. ..... Alaska Bldg., Seattle
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Fiset, F. C. ..... Cobb Bldg., Seattle
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Gustavcson, A. J. ..... Berlin Bldg., Tacoma
Harding, W. P. ..... Leary Bldg., Seattle
Hearne, R. L. ..... Cobb Bldg., Seattle.
Hergert, F. W. ..... Cobb Bldg., Seattle
Holmes, C. A. ..... Colman Bldg., Seattle
Hooey, L. E. A. ..... Northern Bank Bldg., Seattle
Hurd, E. L. ..... Hoquaim
Hutchison, L. E. ..... Wenatchee
Jensen, O. E. ..... Eitel Bldg., Seattle
Kimball, S. N. ..... Northern Bank Bldg., Seattle
Lemley, Burton ..... 1225 Fidelity Bldg., Tacoma
Lenz, Frank J. ..... Joshua Green Bldg., Seattle
Lowrie, W. E. ..... Nat'l. Realty Bldg., Tacoma
Major, J. A. ..... North Yakima
Mattice, C. M. ..... Cobb Bldg., Seattle
McCarthy, J. L. ..... 708 Blewett St., Seattle
McCord, E. S. ..... Joshua Green Bldg., Seattle
Moore, W. A. ..... Cobb Bldg., Seattle
Norris, N. R. ..... Goldendale
O'Connell, F. E. ..... Cobb Bldg., Seattle
Osterburg, G. M. ..... Cobb Bldg., Seattle
Parsons, J. H. ..... Fidelity Bldg., Tacoma
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Poulson, B. L. ..... Enumclaw
Power, Wm. B. ..... Cobb Bldg., Seattle
Randolph, M. F. ..... Cobb Bldg., Seattle
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Saxe, J. N. ..... Cobb Bldg., Seattle
Schenk, R. E. ..... South Bend
Shaw, F. I. ..... Cobb Bldg., Seattle
Smith, N. H. ..... Cobb Bldg., Seattle
Smith, Harry L. ..... Cobb Bldg., Seattle
Stansberry, C. J. ..... Joshua Green Bldg., Seattle
Stebbins, A. K. ..... Tacoma
Stevens, Burt R. ..... Joshua Green Bldg., Seattle
Stevenson, Wm. D. ..... Cobb Bldg., Seattle
Stewart, Lizzie ..... Cobb Bldg., Seattle

Sweeney, Eugene S. .....Joshua Green Bldg., Seattle
Titgen, A. H. .....Sunnyside
Vandewall, R. I. .....Cobb Bldg., Seattle
Von der Senden, Frank W. .....Eitel Bldg., Seattle
Wagner, J. F. .....Burke Bldg., Seattle
Wight, H. E. .....No. Yakima
Williams, George T. .....Cobb Bldg., Seattle
Williams, R. S. .....Tacoma
Wilson, Chas. W. .....Renton
Witham, Fred E. .....Camas
Woolson, A. H. .....Paulsen Bldg., Spokane
Worboys, C. H. .....Cobb Bldg., Seattle
Wyman, Martha K. .....Northern Bank Bldg., Seattle
Zoberbier, E. A. .....Lumbar Exchange Bldg., Seattle

West Virginia.

Sutphin, S. S. .....Beckley

Wisconsin.

Case, Carl B. .....410 Jefferson, Milwaukee
Kerner, G. W. .....1607 Wash. Ave., Racine
Raiche, F. E. .....Marinette
Rasmussen, A. T. .....210-211 Linker Bldg., La Crosse
Weaver, Elbert J. .....Milwaukee

Wyoming.

Appel, Peter, Jr. .....Cheyenne
Calvert, James Rex.....Evanston

United States Territories.

Alaska.

Carter, C. D. ..... Ruby

Hawaii.

Anderson, R. W. ..... Honolulu
Bicknell, H. ..... Honolulu
Braley, G. A. ..... Honolulu
Carey, J. J. ..... Honolulu
Grossman, M. E. ..... Honolulu
Hudde, Geo. H. ..... Hilo
Kennedy, E. M. ..... (U. S. A.) Schofield Barracks
Wall, O. E. ..... Honolulu
Wall, A. C. ..... Honolulu
Whitney, J. M. ..... Honolulu

Philippine Islands.

Baker, C. G. ..... Manila
Martin, W. R. ..... Cebu
Merchant, T. P. ..... Kneedler Bldg., Manila
Ottofy, Louis ..... 54 A. Mabini, Manila

Porto Rico.

Chevremont, L. Emilio ..... 72 San Francisco St., San Juan
Del Valle, Manuel V. ..... 52 Allen St., San Juan
Despiau, Gerardo L. ..... 12 San Justo St., San Juan
Dominguez, J. B. Ramirez ..... San German
Goenaga, Esteban A. de ..... 13 San Jose St., San Juan
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Venegas, Leopoldo ..... 10 San Justo St., San Juan

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